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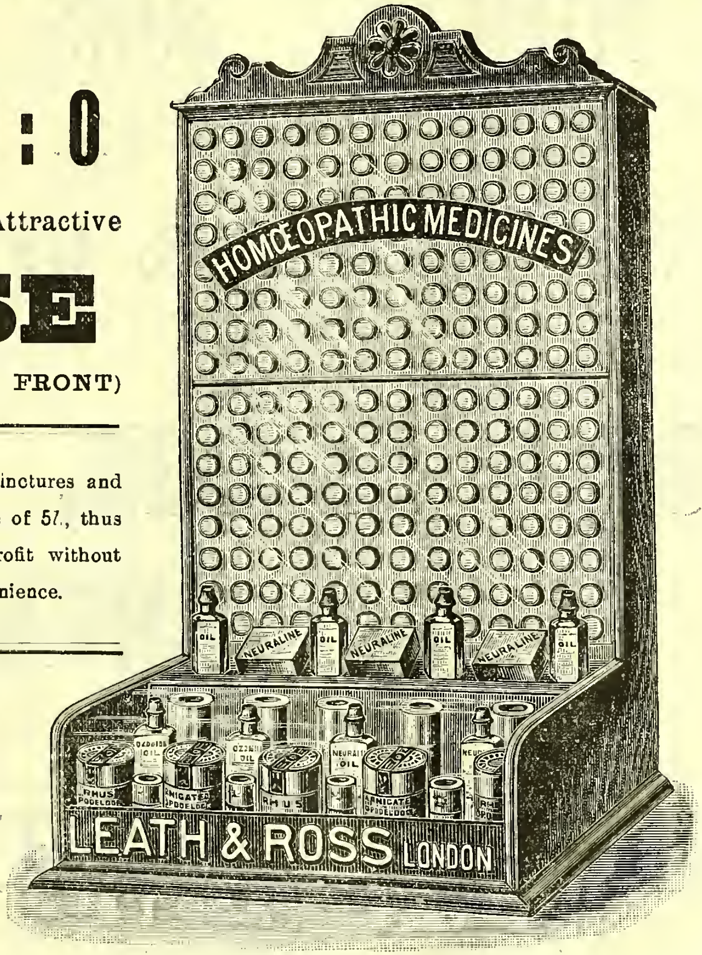

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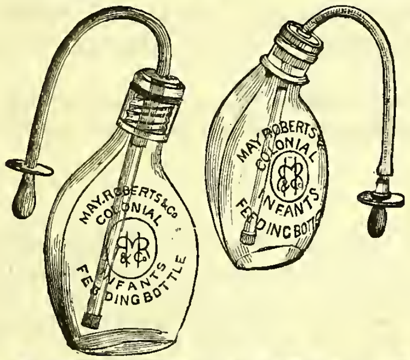

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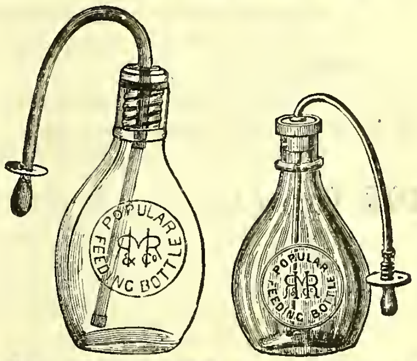

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Is prepared by an entirely distinct process, which renders it free from all unpleasant qualities, without impairing in the smallest degree its invaluable medicinal and nutritive properties. It can be borne and digested by the most delicate, and is the only oil which does not "repeat." Sold *only* in capsuled bottles as Allen & Hanburys' own speciality, each label bearing their signature.

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CAFÉ VIERGE, a highly concentrated essence of pure coffee. Price 1/3 per bottle.

EFFERVESCING SALINE.—A fine granulated preparation which, in dissolving, produces a unstained, sparkling effervescence and clear solution. In bottles at 1/6 each, and in bulk. Samples and quotations on application.

INFANTS' FOODS.—No. 1. "First Food for Infants," in Jars at 1/9 each. For use from birth to three months of age

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"HYPODERM" is the name we have applied to our Compressed Tabellæ of Drugs for Hypodermic administration for the sake of convenience and facility in prescribing. Our "HYPODERMS," in addition to exactness of dose and extreme portability, possess the great advantage of *rapidly* dissolving without heat or trituration. Supplied in Tubes at 10/- per dozen tubes. Detailed list of "Hypoderms," Hypodermic Syringes, and aluminium and leather cases supplied on application.

JUJUBES & PASTILLES, including Glycerine, Black Currant, Delectable, Magnum Bonum, Tamarind, Voice, &c. Sold in boxes at 6*d.* and 1/- each. Also in bulk. Superior to any in the Market.

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MALT EXTRACT WITH COD-LIVER OIL is supplied in bottles, with or without labels and cartons, or in bulk. Samples and prices on application.

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SACCHARIN.—Supplied as *Tabellæ*, in bottles at 9*d.*, 2/-, and 4/-; or *Soluble* (Salt) at 1/-, 2/4, and 4/6. Also in bulk.

SALIPYRIN (Riedel).—Allen & Hanburys have been appointed Sole Agents for the United Kingdom for this chemical product manufactured by Mr. Riedel, of Berlin. It combines the antipyretic and analgesic properties of the Salicylates and of Phenazone B. P. (better known as Antipyrin). In Germany Salipyrin is coming into extensive use. Dr. Guttmann, Dr. Hennig, Dr. Mosengeil, and others have made extensive trials of it, and have written largely upon it. They regard Salipyrin as almost a specific in Influenza, and free from the injurious action on the heart sometimes resulting from the use of Antipyrin, whilst its sudorific action is more moderate and less weakening than that of the Salicylates. In Rheumatism, both acute and chronic, Salipyrin was found to be especially valuable by the above-named authors.

A Pamphlet containing full information on Salipyrin sent on application.

Price 3/6 per oz., or 52/- per lb. SALIPYRIN TABELLÆ (disintegrating), 5 grains each, in bottles at (Retail) 1/-, 2/6, and 4/6. SALIPYRIN CACHETS, 10 grains in each, in boxes 2/6 (Retail), at 23/- per dozen boxes.

TABELLÆ.—Full list of Allen & Hanburys' Compressed Medicines on application. All the more insoluble kinds are made to *rapidly disintegrate* on coming in contact with moisture. In bottles at 1/-, 2/6, and 4/6 each. Also in bulk.

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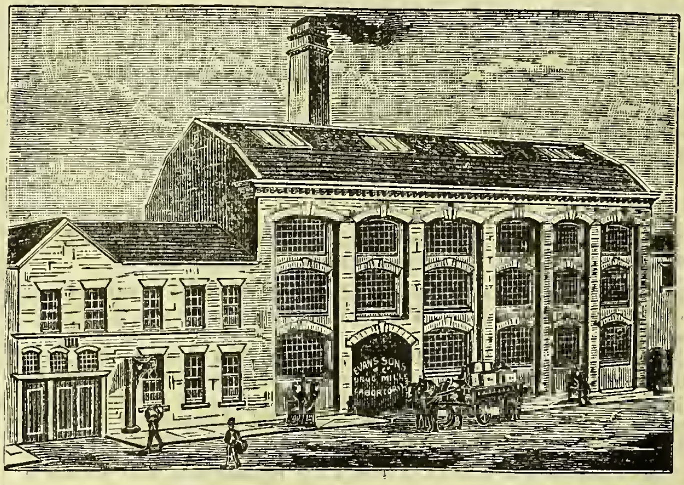

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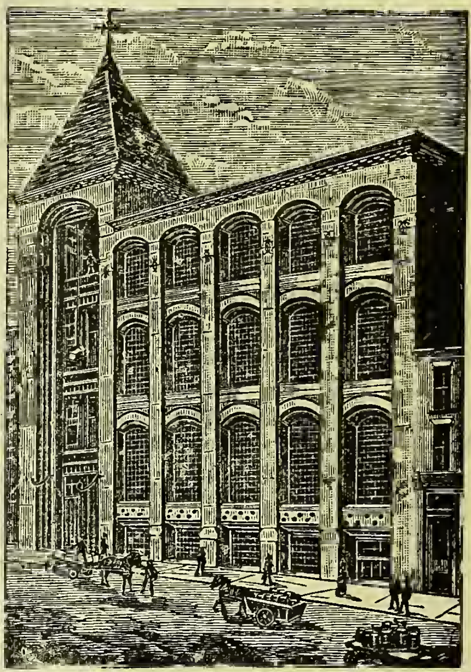

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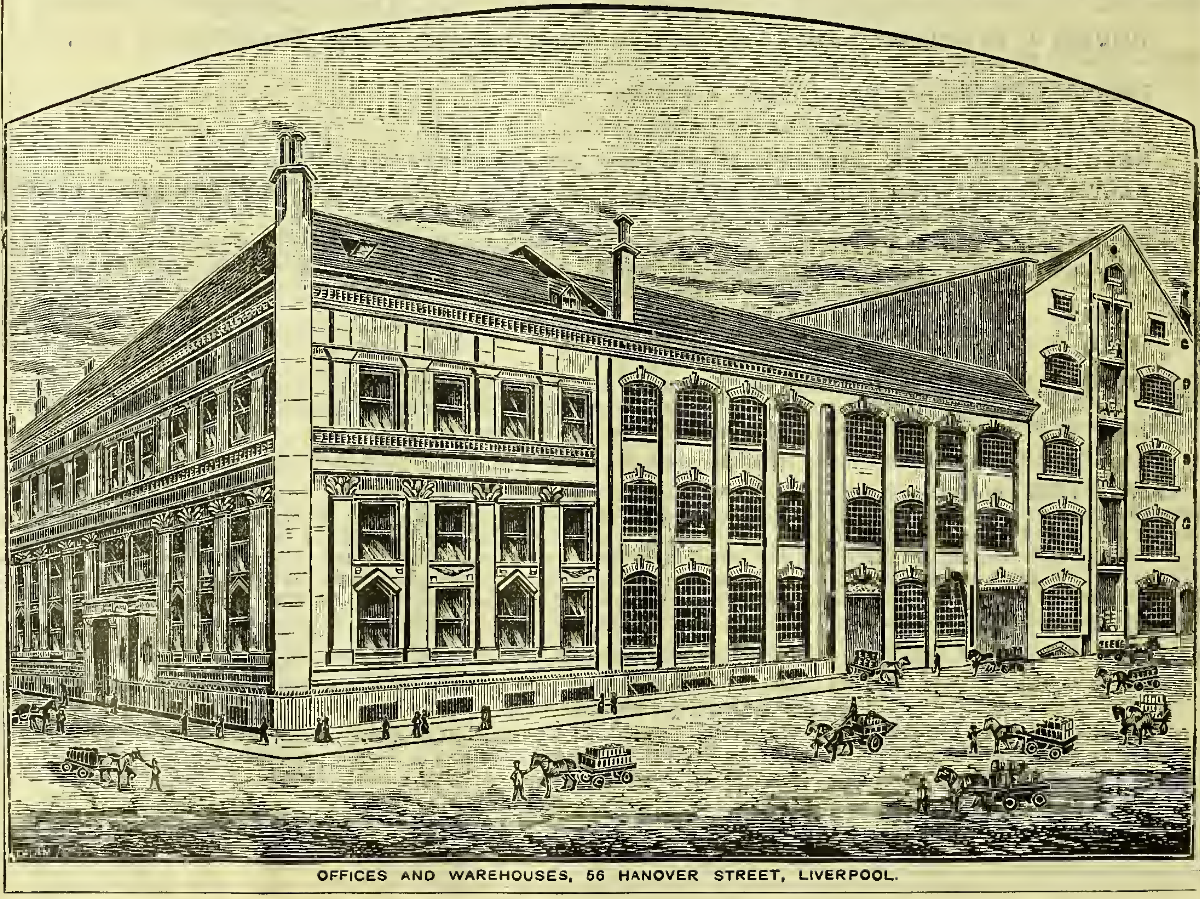

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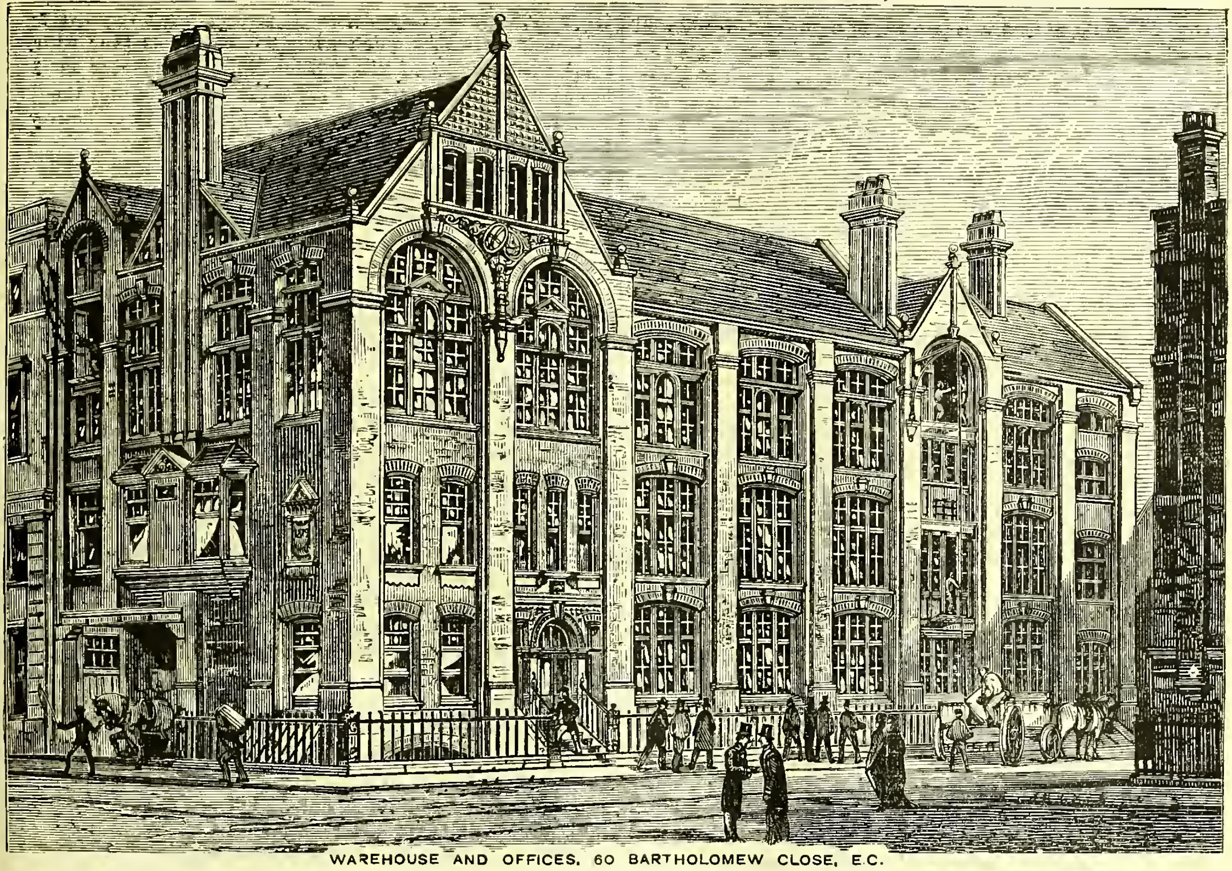

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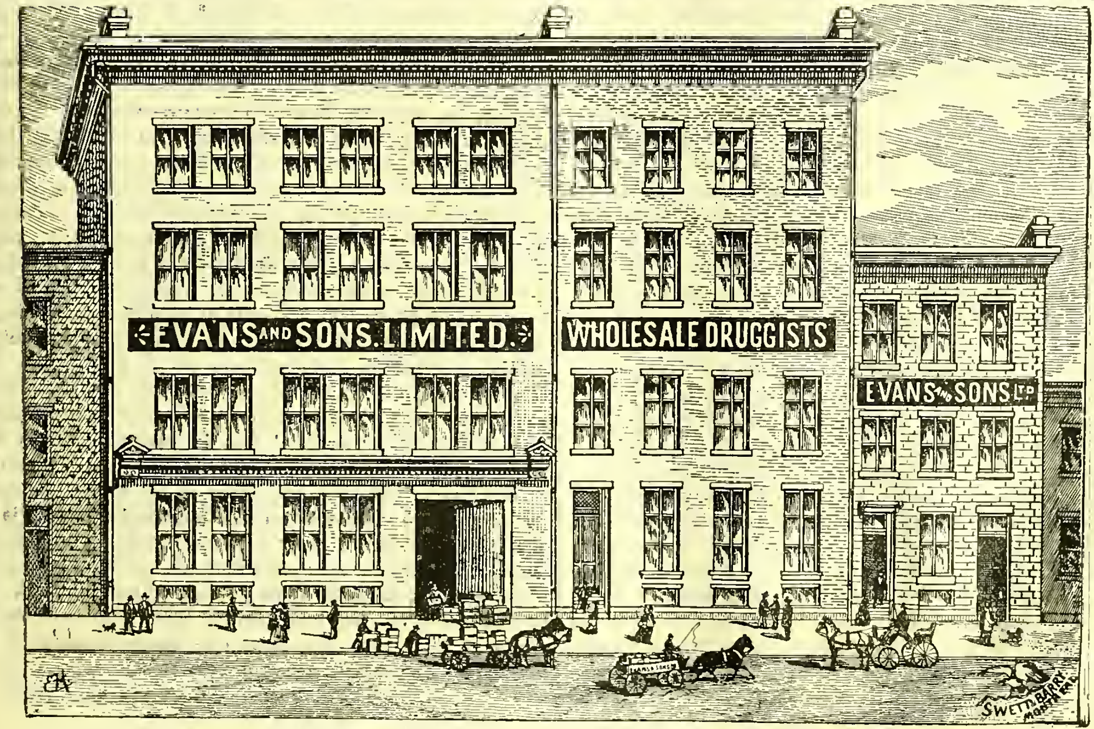

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"DEAD STOCK."

There is nothing which sounds like prosperity in "dead stock." While no man in a fair way of business can very well avoid having some dead stock on hand, all will agree that he should keep it down to the low water mark. Good business generally means activity, and activity means turning things over again and again, and as quickly as possible. From inquiries among our various representatives, we find that the great bulk of our friends have large quantities of dead stock which they would be glad to get rid of. Now all this dead stock is capital locked up; it more or less mars the appearance of the shop; it does not assist to give a good impression of the place to the customer who enters; and it does not bear you the annual profit which your labour, money and enterprise should command. Besides, it occupies more or less valuable space, and it is or should be the purpose of your life to dispose of it. You consequently devote valuable energy and time to induce your customers to take it off your hands. Where you effect sales with it, they are largely due to the exercise of an ability which, bestowed upon profitable and "live" articles, would tend to bring you a fair living profit. This is not a picture drawn from the imagination, but an exact representation of fact. This is not all. "Dead stock" somehow has a tendency to increase, and the more it increases the worse it is for the business and for the individual who owns it. The first thing one sees when he enters many a shop, in the most prominent place, is a lot of "dead stock" which the proprietor would "give his old shoes" if his customers would only take away. But he does not want to give it away; he does not want them to pay him that large profit on it, which the traveller who took the order talked about, but he would be satisfied to get his money back and say nothing about profit at all. A man was in our office a few months ago who talked about the handsome profits that a competing line gave him. He was in again the other day, and that line is now among the "dead stock." We have seen in the last week, in big establishments, the goods of firms shown which to-day are on their last legs—mongrel affairs of a day, miserable imitations, in short, bunkum—and the buyers in these large and respectable establishments are doing their best to get rid of this "dead stock"; we were going to say it would almost serve them right if they had been moved off for ever touching it. We have actually seen people interesting themselves in pushing imitations of "Vinolia" Preparations, when they might have been doing a good business in the latter, but they looked at it in the small and narrow way, that "Vinolia" Soap would bear a certain profit, and that the imitation would bear a larger one. They did not take into consideration that it is not simply the profit you made on one sale of an article, but the profit which you can make on that article for twelve months, which is the thing to be looked at.

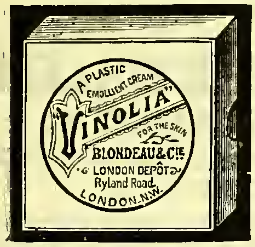
There is dying stock as well as "dead stock." There is the stock which is not quite dead, but is so near to it that it might just as well be called so: it is the article that has been known for twenty years; it is the article you sell a box or two or three of in a month, and which you have not any good excuse for stocking except that you have always done so, and you know the traveller, and do not like to tell him you do not want his firm's goods. There is the stock that is practically dead so far as you are concerned, because though it moves off it bears no profit. You say you think, perhaps, it brings you business to supply what the public wants. Are you sure that it would not be better for you to take a straightforward course and say you will handle those things which pay you a fair living profit, and the rest the public can get elsewhere? The "dead stock" business is the poorest kind that a man can handle; it has got nothing but the Bankruptcy Court ahead of it; it is the upas that tends to kill your prospects, and if times are not very lively and business is very quiet, as it has been this year with some, there can be no less hopeful indication in your shop than a lot of "dead stock." It has got more the dull thud in sound of the graveyard than the ring and chink of active business.

Now, then, investigate this matter a little. Do you really know how much dead stock you have on hand? No? Very well then, find out, and get rid of it as quickly as ever you can—by hook or crook—by any means that are fair and square—get rid of it in as profitable a way as you can, and by all means get rid of it. Call your manager up and ask him whether he has been getting commission on all this rubbish that he should not have warned you of the amount you were getting in hand.

Always keep your fingers on the pulse of business. Note the signs of the times and take your financial bearings with precision and care. Because a thing was popular five years ago, it does not follow that it is the most profitable article of the class to-day. By judicious manipulation you can manage to transfer much of your trade from what is old-fashioned and profitless to what is modern and genuine and *bonâ-fide*. By a little judicious enterprise, you can let your customers know, by allotting choice space in your shops to leading articles, that you keep what is best and the things of the day. When a lady notices that an article is advertised everywhere, reads about it in the papers, hears it talked about in the drawing-rooms and mentioned by the servants, she likes to see it when she goes into a shop. It has a bright appearance, gives the place a look of enterprise, creates a feeling of confidence in the customer that the proprietor of that shop is alive and "up to date." Beneath the magic wand of the enterprising, shrewd business man, the dead stock vanishes, and gives place to the new and stable.

The bulk of business men we have found square and fair, but we have also found some that were shady and shaky; and the latter are never satisfied with a really good thing; they are enterprising, but they are too enterprising, and they get "dead stock" on hand by dealing in imitations on which they hope to reap more than on the original article. In illustration, we were the first who ever introduced a "cream soap." It differs from the other soaps in the field. It is milled—therefore imitations called milled; it is dehydrated and dealkalised—therefore imitations baptised accordingly. Innumerable unscrupulous imitations of our "cream soap" have been foisted on the market and our ideas cribbed. These have all proved more or less dead stock in the past, and they are likely to prove so in the future. We shall advertise from year's end to year's end with the same unremitting energy and untiring zeal that we have done hitherto, and unless these unscrupulous imitations are to be better than our original products, more profitable, advertised with greater energy and more widely, and have altogether more attention paid to them than "Vinolia," then all business in them will prove to the retailer flat, stale, and unprofitable. Beware of "Dead Stock." Make a rule never to let a traveller send you what there is little or no sale for, simply because it is cheap. Don't waste your precious time pushing other people's soap up the hill. Let them do their own pushing by advertising, the same as we do with "Vinolia" Soap. If you want to favour anybody, favour those who help themselves and you too. Tell these old-fashioned imitators of "Vinolia" Soap to quit riding on your back.

Blondeau et Cie.



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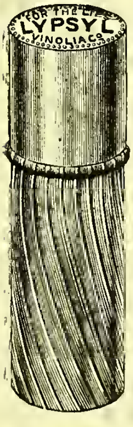

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7/6 PER VASE.

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TOILET, 2/6 A BOX.

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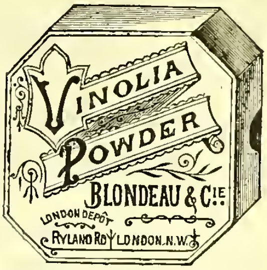

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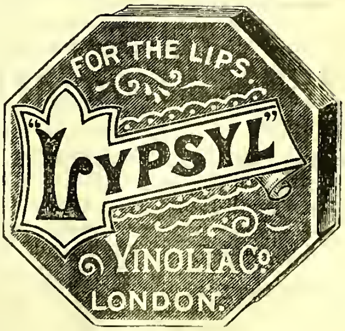
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PRINCIPAL—

Mr. J. S. WARD, Ph.Ch., F.C.S., &c.

HONOURS.

1892.—Mr. G. BAXENDALE won the Pharmaceutical Society's Bronze Medal.

Mr. BAXENDALE passed both the Minor and the Major Examinations from this School at the first attempt.

1891.—Mr. H. A. D. JOWETT won a Bell Scholarship. taking first place, and this year Mr. JOWETT has taken the Pereira Medal, and been awarded the Redwood Scholarship under the altered regulations.

1889.—Mr. E. B. SHERLOCK won the Redwood Scholarship, and the following year took the Pereira Medal.

1887.—Mr. W. A. SALTER won a Bell Scholarship, and became Pereira Medallist the next year.

1884.—Mr J. E. SAUL (a member of the London Board of Examiners) passed the Minor Examination from here, and in 1885 won the Pereira Medal.

It is thus seen that four of the last eight Pereira Medallists received their early training at the Liverpool School of Pharmacy, and Mr. Baxendale has achieved a rare success in taking one of the Council prizes from "the Square" men.

The next Session begins on Monday, September 5, 1892.

A copy of the New Syllabus, illustrated and containing full particulars of the Classes, Time-tables, and Fees, with Pass Lists, will be sent post-free on application to the Principal.

OWENS COLLEGE, MANCHESTER.

PHARMACEUTICAL DEPARTMENT.

The Prospectus of the Pharmaceutical Classes is now ready. The Curriculum for students qualifying for the Minor and Major Examinations of the Pharmaceutical Society includes Chemistry, Botany, Pharmacognosy, Pharmacy, Pharmacy Law. An entrance Exhibition of £10 (subjects. Elementary Chemistry and Elementary Botany) and two prizes of £10 and £5 are offered for competition annually. For all particulars apply to

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10s. 6d. the Set in Case complete. Free by Post.

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225a & 227a OXFORD STREET, MANCHESTER.

Established 1877; Manchester 1882.

Directors {Mr. W. SPENCER TURNER.
Mr. CHARLES TURNER. F.C.S.
(Pharmaceutical Chemists).

The Pass Lists obtained by the M. C. P. at the July Examinations include Three Majors (all who entered), and Eight Minors (out of ten), being one of the best results obtained in those examinations, in which only about one man in four passed.

The next session will begin on August 29th, and will include, besides the usual courses of Full-time, Afternoon, Once a Week, and Evening classes for the January Minor and Major; special courses of all these classes reserved for students working for the October examinations.

All details are given in the Prospectus (copyright), which will be sent on application.

NORTHERN SCHOOL OF PHARMACY,

100 Burlington St., MANCHESTER.

PRINCIPAL—Mr. GEORGE CLAYTON.

At the recent July Examinations EIGHTEEN Gentlemen passed from the Northern School, nearly all at their first attempt.

From July, 1891, until July, 1892, SEVENTY-THREE Gentlemen have qualified from the "Northern," the percentage of passes for the twelve months being nearly 80 per cent.

The Next Session will commence on August 31, and comprises Full Time, Afternoon, and Evening Courses for both Minor and Major. The Full Time Major and Minor Classes are full until October, but there are a few vacancies in the course commencing August 31, and working for the January Examination. There are still a few vacancies in the Minor Class.

Prospectus posted on application to the Principal.

Prepares Gentlemen for all Examinations in Chemistry, Materia Medica, Botany, Pharmacy, Physiology and Biology, including the Minor and Major of the Pharmaceutical Society, Apothecaries Hall, Conjoint Examining Board of Royal Colleges of Physicians and Surgeons (Primary), &c.

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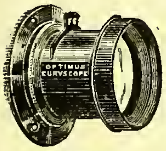

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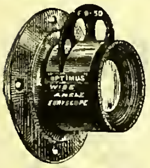

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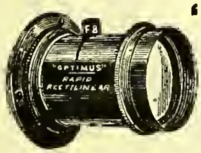

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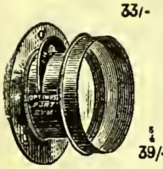

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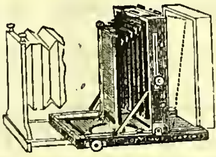

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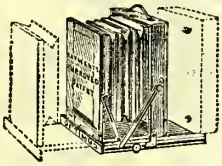

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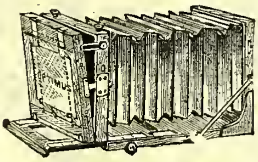

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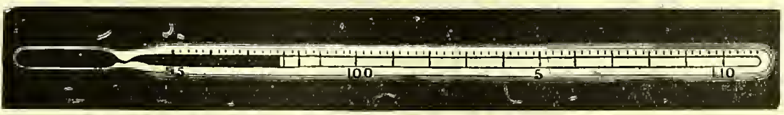

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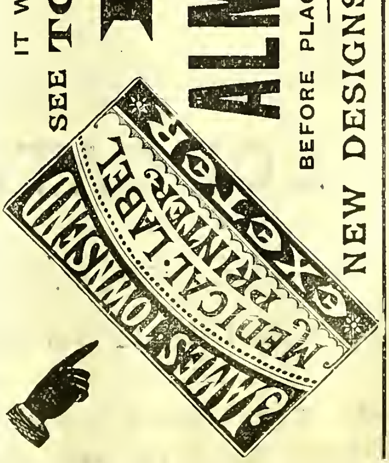

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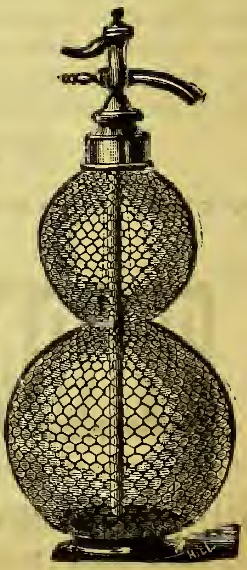

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4.—**LONDON, S.E.**—Capitally situate in a main road, an old-established good Middle-class Business; returns about £625, which includes a good speciality, with wholesale demand; *very profitable*; well-fitted and attractive shop, and good stock; convenient house, garden, and greenhouse; price £550.

5.—**LONDON, N.W.**—Nucleus of good Business; present returns nearly £300; the shop is nicely fitted, and in the hands of a pushing man offers a good opportunity; about £175 only required.

6.—**LONDON, S.W.**—Retail and Dispensing Business, situate in a main road; returns between £550 and £600, *all profitable business*; double-fronted corner shop, well fitted, and good stock; good 8-roomed house and shop, private entrance and yard; price £500.

7.—**LONDON, S.W.**—Prescribing and General Retail; well-fitted shop and good stock; house has 10 rooms, commodious, and well built; good garden and warehouse; rent £65, on long lease; business returns about £600; price £400.

8.—**CATHEDRAL TOWN.—PARTNERSHIP.**—A vacancy offers in a good Agricultural and Proprietary Business, Wholesale and Retail; incomer must be prepared with £2,000; particulars at private interview; banker's reference required.

9.—**EASTERN WATERING-PLACE.**—Dispensing and Retail; vendor retiring from ill-health; the shop is handsomely fitted, and the house large and well-appointed, with private entrance, &c., can easily be let off; price required £400, for which full value is offered.

10.—**KENT (easy distance from London).**—Good-class old-established Business; returns between £1,200 and £1,300 yearly, increasing; *profits above the average*; house contains 8 rooms and shop; rent very moderate; vendor will take a partner if wished for a short time, or sell at once; terms to be arranged, about £1,150 or £1,200.

11.—**MIDLAND COUNTY.**—Dispensing, Retail, and Prescribing, situate in a good market town in a favourite hunting district; returns about £800; *profits net over* 25 *per cent.*; capital stock; comfortable house, good business premises, and good-sized garden; £800 required.

12.—**SOUTH (Seaside).**—Old-established Business; returns between £650 and £700; *good profits*; well-fitted shop; good stock; good sized house, held on lease; price £500.

13.—**ON THE BORDERS OF WALES (North).**—Retail and Dispensing; no heavy trade; returns nearly £650; *very profitable*; single-fronted well-fitted shop, and full stock; large house, very low rental, on lease; price £460, or valuation; London wholesale reference will be given if required.

14.—**SOUTH OF ENGLAND (pretty rural town near the sea).**—Returns nearly £600; no heavy trade; well-fitted shop, capital position, and good stock; comfortable house, with large garden, stable, &c.; rent very low; price £480.

Particulars of any of the above will be furnished on application.

N.B.—NO CHARGE TO PURCHASERS.

Other Businesses, Town and Country. Particulars free on application. Personal applicants receive Messrs. O. & Co.'s direct attention and advice, where required, free.

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Messrs. ORRIDGE & Co. invite communications from COLONIAL and FOREIGN firms where business of a confidential nature requires the especial attention of a London Agent.

NOTICE.—*Messrs. ORRIDGE & CO. have a large number of Businesses for Sale, suitable for Gentlemen with Small Capital. Full particulars on application.*

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References to principal London and Provincial Wholesale Houses, also to numerous clients throughout the United Kingdom.

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Stocktaking Unnecessary.—Stocktaking is always dreaded by Chemists, and with a competent Valuer is not necessary.

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£750 returns.—**MIDLANDS.**—Dispensing and Light Retail in fine suburban position of good town; price £750, or valuation. £500 returns.—**SUFFOLK.**—Very profitable light Village Retail; fair house, garden, &c.; rent and taxes £12; price £300. £1,100 returns.—**LINCS.**—Good Family Retail, with Wines and Spirits, in thriving market town; price £750. £700 returns.—**BIRMINGHAM.**—Dispensing, Light Retail, and own specialities, in main road; price £450. £530.—**LEEDS** (near)—Unopposed Retail, with Gilbey's agency; can be much increased; price £250, or valuation. £1,400 returns.—**YORKS.**—Good General Retail, with Agency (all profit and no trouble) that nearly pays rent; price about £750.

MESSRS. BERDOE & CO.

CHEMISTS' TRANSFER AGENTS & VALUERS,

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Established 1870.

VALUATIONS and TRANSFERS conducted in any part of the United Kingdom. Over 20 years' practical experience.

NO CHARGE TO PURCHASERS.

1.—**SOUTH COAST.**—First-class Light Retail and Dispensing Business; same hands 20 years; returns £1,200; large house in best thoroughfare of fashionable town; price £1,000, or offer.

2.—**WEST OF ENGLAND.**—Good country town; profitable Retail, Dispensing, and Agricultural Business; returns last year £1,278; good house, half-acre garden; price £800, or offer.

3.—**YORKSHIRE.**—Good-class Light Retail, Dispensing, and Prescribing Business; returns £1,000 under management; good house, low rent; shop well fitted and heavily stocked; price £750, or offer.

4.—**KENT.**—Popular seaside resort; good-class Light Retail and Dispensing Business; returns £700; 5,000 prescriptions yearly; good house; changed hands once in 40 years; price £500.

5.—**DERBYSHIRE.**—Light Retail, Dispensing, and Prescribing Business; returns £750; net profit £300; corner double-fronted shop, well fitted, and large stock; good house, side entrance; price £550.

6.—**WARWICK.**—Unopposed Light Retail Business; returns £900, and making a clear income of £350 yearly; low rent; good house and garden; price £700; worth special attention.

7.—**YORKSHIRE.**—Unopposed village Business, Retail and Prescribing; returns £5[illegible]0; net profit £200; rent £20; good house and garden; price £250, or valuation of stock and fixtures.

8.—**BATH.**—Old-established Light Retail and Dispensing Business; returns £600; net profit, nearly £250; 1,100 prescriptions yearly; low rent, good house; price £500, or offer.

9.—**READING** (near).—High-class Retail and Dispensing Business; no opposition; recently established and under management; will do £500 under principal; good house, garden; price £125.

10.—**LONDON, S.W.**—Splendid opportunity for young energetic man, handsome Pharmacy for £100 inclusive, being only half value of stock and fixtures; good living and sure increase.

11.—**LONDON, N.W.**—Few miles out; good-class Retail and Dispensing Business; returns £400; convenient house with garden; shop is well-fitted and stocked; price £200.

Particulars of the above and others sent free on application.

Messrs. Berdoe & Co., 30 Jewry Street, Aldgate, E.C.

BUSINESSES FOR DISPOSAL.

3*s.* 6*d. for fifty words;* 6*d. for every* 10 *words beyond.*

DEATH Vacancy.—South Coast; same hands 50 years; nice shop; splendid position; convenient house; price, valuation, probably £150 to £300. Address, "Chemist," 54 St. Thomas' Street, Portsmouth.

CITY Business for sale; lock, stock, and barrel; splendid modern fittings; first offer; chance seldom met with; *bonâ-fide* intending purchasers need only apply. Call personally next week, 10 Hatton Garden, E.C.

FOR disposal, Light Retail, Prescribing and Dispensing Business; returns about £300, capable of increase; mahogany fittings and well stocked; every investigation allowed; price £150 or reasonable offer. "Chemist," 117 Hessle Road, Hull.

£950.—Good ready-money Retail and Prescribing Business, with wine and spirit licence; good corner shop and house; long lease, low rental; satisfactory reasons for disposing; will sell the lot at valuation. B. B., Ayrton & Saunders, Liverpool.

Messrs. CROCKER & CO.

Trade Valuers, Transfer Agents, and Accountants,

15 WALBROOK, E.C.,

Have at the present time a large number of inquiries for good-class Country Businesses, and they invite communications from intending vendors. **NO CHARGE IS MADE UNLESS A SALE IS EFFECTED.**

SOMERSET.—Old-established Business in fashionable watering-place. giving a net profit of £350 a year; price £400.

MIDLANDS.—Good-class Country Retail and Dispensing; returns £1,500; net profit £400; price £500.

BUCKS.—Rapidly-increasing Retail and Dispensing; returns £550; price £400; good house and garden.

LONDON, W.—Good-class Retail and Dispensing; returns £1,000; price £800; handsome pharmacy; valuable lease; good house.

ON THE BANKS OF THE THAMES.—Old-established Retail and Dispensing; returns £800; price £750; scope for increase.

SEASIDE.—Good-class Retail and Dispensing trade; returns £600 plenty of scope for increase; price £400; large and convenient house.

NO CHARGE TO PURCHASERS.

VALUATIONS A SPECIALITY. TERMS ON APPLICATION.

BUSINESSES FOR DISPOSAL—Continued.

LONDON Suburbs—Either of 2 Businesses for sale; value £1,000 and £400; both profitable; well fitted and stocked; several good proprietaries; partner would be entertained. Apply, by letter, with reference, T. P., 65 Southborough Road, South Hackney, N.E.

IN one of the leading towns in the West of England.—A first-class Light Retail, Prescribing Business, with Wines and Spirits; returns have averaged £1,900 for last 3 years; handsomely fitted; good stock; large house; valuation only. Address, N. M., 62 Crescent Road, Reading.

£450.—Light Retail and Prescribing, in leading thoroughfare, busy Midland town; double-fronted shop, well fitted and stocked; six-roomed house with garden; low rent; lease; returns over £650, increasing. Apply, "Fides," care of Heap, Chemist, Hanley.

KENT COAST.—Light Retail and Dispensing Business, having an excellent position in a rapidly-improving town; returns £600; in younger hands would do £1,000; good house, suitable for letting; low rent; price £400. 42/8, Office of The Chemist and Druggist, 42 Cannon Street, E.C.

TO be Sold, immediate possession, Branch Business under managership; rising neighbourhood, with large population; scope for extension; suitable to energetic young man not afraid of work; good opening for Dentistry; last years' returns, £300; rent £40. Apply J. Smithson, Chemist, Brighton.

EAST LONDON.—Ready-money Retail, Dispensing, and Prescribing Business, returning over £600 yearly; capital position in main busy thoroughfare; owner being anxious to leave London before winter sets in, will accept £300, or valuation of stock and fixtures. L., Office of The Chemist and Druggist, 42 Cannon Street, E.C.

LONDON (suburb), S.E.—For immediate disposal, recently established Retail and Dispensing Business; main thoroughfare; present returns nearly £10 weekly, and increasing; good profits; increasing locality; price £350; £250 cash, remainder by instalments. 130/3, Office of The Chemist and Druggist, 42 Cannon Street, E.C.

FOR immediate disposal, a genuine Retail and Prescribing Business; returns increasing; good opening for Dentistry; terms can be arranged for part cash and remainder by instalments; illness sold cause of sale; every investigation allowed; attractive and good shop; well stocked; no agents. Address, "Vinolia," 238 Westminster Road, S.W.

SPLENDID opportunity to a qualified man with small capital.—Advertiser could introduce above to a capital opening in a large village, with little opposition; resident Doctor would give a qualified man all his dispensing and patronage; rent very low; bonus required. "Spes," Office of The Chemist and Druggist, 42 Cannon Street, E.C.

LONDON, East.—Genuine Retail and Prescribing; in thorough working order; thickly-populated district; no opposition near; returns over £400, half profit; good Prescriber would do well; well stocked; good opening for Dentistry; long lease; rent £26; price £285. A. J. K., c/o Messrs. Evans, Lescher & Webb, Bartholomew Close, London.

£335.—Genuine Country Business in the West for disposal; doing over £500, all cash, with plenty of scope for increase; old-established Light Retail, Dispensing, Prescribing, Agricultural, &c.; nothing heavy; good family residence at moderate rental. "Desmid," Office of The Chemist and Druggist, 42 Cannon Street, E.C.

BIRMINGHAM Suburbs; thickly populated; a genuine Prescribing and Light Retail, returning over £500, and increasing; considerable Proprietaries; no patents; exceptionally good house and shop; price £300. This Business is a thoroughly profitable concern; at present has only partial attention, hence great scope for much increase. "Prescriber," Wyleys, Coventry.

BUSINESSES FOR DISPOSAL—Continued.

FOR disposal, a sound and profitable Chemist's and Druggist's Business; first rate dispensing department at good prices; in one of the best and most fashionable West Midland towns; population 50,000; proprietor retiring; first-class corner shop and house. Everett & Whibley, Valuers, Accountants, &c., 13 King William Street City.

A GOOD Retail, Prescribing, and Agricultural Business; market town in Lincolnshire; all newly fitted; well stocked; satisfactory reasons for disposal; next door to Post-office; opposite Corn Exchange. Particulars of A. C. Farmer, Chemist, Spilsby. A week's trial allowed to a genuine purchaser. Also good Dispensing and Prescribing Business at High Street, Putney.

DEATH Vacancy.—Recently opened suburban business for immediate disposal, doing well and increasing; well fitted and stocked shop; good house and garden; low rent on lease; this is a splendid opening in a rapidly increasing neighbourhood for an energetic man; about £450 required, part could remain. Apply, by letter, "Chemicus," 6 Pemberton Gardens, N.

DEATH Vacancy.—Near Epping Forest; a light Retail, Dispensing, and Prescribing Business; present returns under management £12 weekly; very low rent on long lease; handsomely fitted shop, well stocked; unopposed locality; price about £450. Further particulars, address "Exors," Office of The Chemist and Druggist, 42 Cannon Street, E.C.

LONDON, N.W. (main road).—A Business to be disposed of at once, owing to ill-health; price £300 or fair offer; returns between £600 and £700; copy 1,200 new prescriptions per year; an excellent opportunity for beginner, as part can be re-let, reducing the rent by half. Apply, 13f/10, Office of The Chemist and Druggist, 42 Cannon Street, E.C.

YORKSHIRE.—Market town; old-established Light Retail and Prescribing Business; owner retiring through old age; a fair trade is now being done, but in younger hands it could be easily doubled; only valuation wanted, £150 to £200. "Yorks," Office of The Chemist and Druggist, 42 Cannon Street, E.C.

FOR Sale, genuine Prescribing and Dispensing Business; no other chemist within a radius of 2 miles; population 8,000 to 10,000; good opening for Dentistry; returns £500; price £350; stock and fixtures in good condition and worth considerably more than the price asked; must be sold; satisfactory reasons for disposal. Further particulars from "Chemist," c/o Wyleys (Limited), Coventry.

£200.—SURREY HILLS.—Good-class and rapidly-increasing locality; handsome double-fronted shop, well fitted, and good working stock; very pleasant house and garden; returns about £7 weekly, with excellent prospects for the future; stock, fixtures, worth price asked. "Rhei," 46 St. James' Grove, Peckham, London. S.E.

GENUINE Retail Drug Business for sale; established 20 years ago by present proprietor, who is retiring from retail; long lease, as lock-up shop, or with house; 10 minutes from London Bridge, Surrey side; thickly populated; very brisk ready-money drug trade, with two or three good proprietary lines. Address, "Practical Chemist," Office of The Chemist and Druggist, 42 Cannon Street, E.C.

IN a flourishing Lancashire town, first-class old-established Chemist's Business with Wines and Spirits attached, also good proprietary articles well advertised; returns over £2,000, which could be largely increased; the shop is a lock-up one; handsomely fitted; in main thoroughfare; large warehouse accommodation; good stock; rent £170; valuation. Particulars, "Combined," Evans, Sons & Co., Liverpool.

NEAR Crystal Palace; important main road position; pleasantly situated; commanding extensive superior class residential neighbourhood well backed up by large working-class population; good house; easy rent; no opposition within mile either side; price £275; scope for increasing this business is unlimited, consequently money-making investment. "Going," Office of The Chemist and Druggist, 42 Cannon Street, E.C.

BUSINESSES WANTED.

3s. 6d. for fifty words; 6d. for every 10 words beyond.

WANTED, a good-class Retail and Dispensing Business, returning about £1,200; London or South Coast preferred; must bear strict investigation; cash ready; all communications treated strictly confidentially. Address, "Minor," 82 Beckenham Road, Penge, S.E.

WANTED, at once, a good-class Country Retail and Dispensing Business, in or near a good provincial market town; returning upwards of £800, with scope for increase; advertiser has just sold his business in the North of London, and is prepared to treat at once. "Chemist," c/o Newbery & Son, King Edward Street, E.C.

WANTED. Genuine Country Business, capable of increase; must be in healthy locality, and have good house and garden; state returns, profit, price, class of trade, and all particulars; Dispensing business not objected to; none but those answering this description need apply. "Magnesia," Office of The Chemist and Druggist, 42 Cannon Street, E.C.

WANTED.

3s. 6d. for fifty words; 6d. for every 10 words beyond.

WANTED, to purchase the complete Fittings of a Chemist's Shop; stock would also be taken if necessary. Apply to Boulatt, 52 Marchmont Street, W.C.

PARTNERSHIPS.

3s. 6d. for fifty words; 6d. for every 10 words beyond.

A CHEMIST and Druggist who has practised as a Medical Electrician for twelve months with good results, would like to find a gentleman with capital, who would enter into Partnership or open a Light Retail and Dispensing Business; advertiser has small stock and good fittings; reliable references, &c., indispensable. Address, 136/27, Office of The Chemist and Druggist, 42 Cannon Street, E.C.

TO CHEMISTS AND DRUGGISTS.—The Proprietor of a very old-established business in good county town, owing to ill-health, requires an active Partner with small capital; advertiser would be prepared to sell, or to pass over the business at an early date, on easy terms. Apply, in first instance by letter, Mr. J. Waight, Accountant, 1 West Walk, Dorchester.

A CHEMIST (retired from Retail), proprietor of long-established Veterinary Specialities, wishes to meet a Chemist (London preferred) who would manufacture the same on mutual terms, with option of services of advertiser's son as General Assistant; unqualified, tall (21½), six years' experience. "Progress," 8 Duke Street Mansions, Grosvenor Square, London.

FOR SALE.

3s. 6d. for fifty words; 6d. for every 10 words beyond.

SMALL Chemist's Stock, Fixtures, Jars, Bottles, Cases, &c., for sale, together or in separate lots. P. Golston & Co., 93 Oxford Road, Manchester.

SMALL Soap-making Plant—suit Chemist making specialities—comprising small upright boiler, 18-gallon cased pan, Houchin's cutter-machine, Houchin's stamping-machine, moulds, &c. P. Gelston & Co., 93 Oxford Road, Manchester.

JOHN WILD, Chemist, 225 Oxford Street, Manchester, has for disposal those handsome Spanish-mahogany Fixtures at the above address; also Shop-rounds and Jars; no reasonable offer refused. Apply, 307 Oxford Street, Manchester.

APPARATUS for urine analysis—half-shade Mitscherlich saccharometer, with lamp, by Schmidt & Haensch, Berlin; also a Russell-West apparatus for the estimation of urea; measure and pipette; price 5 guineas the lot. Thomas Jobson, 20 Shepherd's Bush Road, London.

HANDSOME Mahogany Fittings for Chemist's shop—Drawers 20 feet long, Glass Knobs and Labels, Dispensing-screen, Cases with plate-glass centre, Veneered Shelves and Pillars with plate-glass, solid Mahogany Counter, Cornice, &c. (all nearly as good as new), Jars, Bottles, Window Carboys, &c.; no reasonable offer refused; must clear altogether. Apply, N. M., 113 High Street, West Bromwich.

TO LET.

3s. 6d. for fifty words; 6d. for every 10 words beyond.

TO LET, immediate possession, noble Shop, 32 Giles Street, Northampton (one minute from Town Hall); not a Chemist in this whole section of the town, yet most central premises; 81 ft. back; part can be let off; rent £26. To view any day, or wire Cooley, Sherwood, Nottingham.

APPRENTICESHIPS.

3s. 6d. for fifty words; 6d. for every 10 words beyond.

APPRENTICE wanted at once; must have passed Preliminary or equivalent; comfortable home; time for recreation and study; premium required. Edwin Thorp, Pharmaceutical Chemist, Chichester.

TO Parents and Guardians.—Mr. F. H. Reeks, M.R.C.V.S., Veterinary Surgeon, Spalding, Lincoln, has a vacancy for a young gentleman as Resident Pupil, in an extensive good-class practice, where every opportunity exists for a thorough training in the profession; terms as above.

SITUATIONS OPEN.

3s. 6d. for fifty words; 6d. for every 10 words beyond.

COMPETENT Assistant. Knight, 452 Edgware Road.

WANTED, Dispenser. State salary (outdoors) to Dr. Croke, Beverley.

AN experienced Man for the warehouse, married, without family, to reside on the works. Apply, "Drugs," 42 Cannon Street, E.C.

IMPROVER, about 20 or 21 years; outdoors; Wesleyan family. Apply, with usual particulars, to S. D., 67 Fernhead Road, Paddington, W.

WANTED, a Junior Assistant; outdoors. Apply, giving full particulars, to D. P. Roberts, Drug and Chemical Store, North End, Croydon.

COMPETENT Assistant, as Dispenser; must be experienced, accurate, and painstaking; qualified. Please state full particulars and salary required, Davies & John, Bath.

WANTED, immediately, a qualified Assistant to manage Branch; good house attached. Apply, with usual particulars, to A. R. Keith, Criterion Buildings, Upper Holloway, N.

JUNIOR Assistant, for three weeks, from about Sept. 12; outdoors; another Assistant kept. Apply, with full particulars, and photo if possible, to C. R. Sharman, 2 New Road, Gravesend.

WANTED, an energetic Assistant (outdoors) for Retail and Dispensing department. Apply, giving full particulars, state salary required, and inclose c. d. v., to Kiloh & Co., Ltd., Cork.

WANTED, an Assistant (outdoors) for a Wholesale and Retail Drug Store; light hours. Send age, height, experience, and photo (to be returned), with references, to Thomas Bailey, Coventry.

WANTED, a smart Junior or Turnover; outdoors; hours, 8.30 to 9 P.M.; no Sunday duty, one evening off per week; state salary required, give reference. Preston Drug Company, Preston, Lancs.

WANTED, an Assistant; Minor; state age, height, salary required, references, and enclose photo; comfortable home, and practically no Sunday work. Apply, W. Baxter, 160 High Street, Southampton.

WANTED, a gentlemanly Assistant as Junior or Improver; 3 kept and apprentice, who have sitting-room to themselves; must have passed Preliminary. J. W. Latham, Pharmaceutical Chemist, Romford.

WANTED, immediately, a capable and obliging Assistant; age about 22; must be neat and accurate Dispenser; total abstainer preferred. Address, Sidney Fisher, Six Ways, Aston, near Birmingham.

WANTED, Improver or Turnover-apprentice in West-end house, who has passed Preliminary. Apply, P. C. & Co., care of Messrs. Sanger & Sons, 489 Oxford Street, W., stating age, height, how long in the business.

WANTED, immediately, Senior Assistant for good county business; unmarried; hours easy and no Sunday duty; one passed Minor and a good Tooth Extractor preferred. Apply, Woods, Harleston, Norfolk.

AGENT wanted, thoroughly acquainted with the Export Trade in Acetic Acids, 80% and 100% (Glacial), in bottles, to China, Japan, and India. Apply, by letter, to A 3094, care of Rudolf Mosse, Cologne, Germany.

WANTED, an Assistant of good experience and abilities, for first-class Retail and Dispensing Business. Apply, stating particulars, viz., age, height, and salary required, with references, to George Baxter, Pharmacist, Chester.

JUNIOR wanted, immediately, age about 20, for Light Retail and Dispensing business; easy hours, half-day weekly; no Sunday duty. Apply, with particulars as to salary, &c., enclosing photo. to Ferriday, Chemist, Oakengates.

IMPROVER or Junior, indoors, in good-class Country Retail; seaside; two hours daily for study or recreation; no Sunday duty. State salary, references, and usual particulars, enclosing photo, to Cooper, Chemist, Brightlingsea.

WANTED, a qualified Assistant for a country business; outdoors; no Sunday duty; close from 4 P.M. every Thursday. Please state salary (outdoors), height, references, and usual particulars, to E. G. Carrington, Bakewell.

WANTED at once by a Medical man in Leicester, an experienced and accurate Dispenser; must be a good bookkeeper; recent references required; terms 30s. per week. Apply, by letter only, to M. D., 64 London Road, Leicester.

COMPETENT Assistant, accustomed to Country Retail and Prescribing; capable of taking charge during temporary absence; no Sunday or evening duty; please state salary, if qualified, and enclose photo. Isaac, Chemist, Neath, South Wales.

A GOOD Dispensing Assistant, accustomed to first-class business in London or the South Coast; Major or Minor qualification; indoors; please state age, height, and salary required, also last situation. Apply to Gibbs & Gurnell, Ryde, Isle of Wight.

JUNIOR, reliable and good Counterman; outdoors; easy hours; no Sunday duty; good references indispensable. Apply, enclosing photo and references, and salary required, McConnal, Chemist and Wine Merchant, 5 Newgate Street, Bishop Auckland.

WANTED, qualified man; Minor sufficient; must be able to Extract Teeth and fully qualified to take charge of Dispensing Counter and sale of poisons, with manufacture of tinctures, &c., &c. Apply, with testimonials (no copies), Inco, 218 Market Place, Dudley.

QUALIFIED Assistant wanted, at once; outdoors; must be well recommended and accustomed to good-class Retail and Dispensing. Apply, with full particulars, enclosing photo and references, and salary required, to A. Middleton, Lister Gate, Nottingham.

WANTED, a qualified Chemist, having a manufacturing laboratory experience of the B. P. preparations, pill-coating, &c. Enclose photo (to be returned), with the usual particulars, to "Manchester," Office of The Chemist and Druggist, 42 Cannon Street, E.C.

WANTED, an unqualified Assistant, aged 22 to 24, as Second; accustomed to first-class Retail and Dispensing; use of laboratory to one studying for Minor. Apply, with usual particulars, to Messrs. Shrubsole & Son, Pharmaceutical Chemists, City Pharmacy, Chester.

IMMEDIATELY (for Ostend).—M. A. de Cock, Pharmacie Centrale, 16 Rue des Sœurs Blanches, Ostend, is in immediate want of an Assistant, with a knowledge of English and German, and (preferably) with some acquaintance with French; send photo. Address as above.

TRAVELLER wanted to call upon country Chemists and Druggists by an old-established city manufacturing house. Applications must be made by letter stating references and present position to D. E., c/o Messrs. Metcalfe & Co., 3 and 4 Grocer's Hall Court, Poultry, E.C.

ENERGETIC Junior or Improver; one accustomed or able to solicit; Agricultural and Prescribing district; no heavy work, no Sunday duty; pony and trap for soliciting about 3 days a week; must be willing and trustworthy; outdoor. W. O. Smith, Chemist, Titchfield, Hants.

HICKS & CO., Cardiff, require a qualified Senior Assistant, capable of managing one of their Retail establishments; must have been accustomed to a good-class trade and be a smart business man; no Sunday duty; state references, age, height, salary required (outdoors), and enclose carte.

WANTED, qualified Assistant, as Manager for chemist's widow in Light Retail business; must be first-class Dispenser and Prescriber; hours 8 to 8.30. Apply, with full particulars, enclosing photo and references, with salary required (indoors), to Mrs. Dolman, Cheltenham.

QUALIFIED Assistant, to take charge of suburban Branch, wanted about second week in September, pushing and energetic; Extractor preferred; state salary (indoors), experience, and usual particulars. Also vacancy for Junior or Improver. Apply, W. E. Callam, 193 Borough High Street, S.E.

WANTED, about third week in September, qualified Assistant (outdoors), married no objection, for a Mixed business; must be quick and obliging to customers, and able to Extract teeth. Apply, stating salary and full particulars, to "Chemicus," 3 Leopold Terrace, Chapeltown Road, Leeds.

WANTED, Assistant for small Wholesale, Retail, and Agricultural business; one accustomed to a little travelling preferred; qualification not necessary; salary and commission; plenty of scope for energetic man. "Cinchona," Messrs. Harker, Stagg & Morgan, 15 Lawrence Pountney Lane, E.C.

INVOICE Clerk wanted, at once; must be a good writer, and quick and correct at figuring, having had experience in invoicing Druggists' sundries and Patent Medicines; good wages to a suitable man. Write fully, stating age, previous experience, and wages required, to The Chemists' Association (Limited), Curtain Road, E.C.

WANTED, Assistant; Qualified; must be Christian abstainer; Mixed Business; chiefly Counter work; state age, experience, and salary required; photo if convenient; live in house, sleep out, or arrangements in correspondence; a good opportunity for a young man just passed exams. Address, 131/29, Office of The Chemist and Druggist, 42 Cannon Street, E.C.

WANTED, qualified Assistant (outdoors) for Light Retail and Dispensing Cash Business in the South of England; married preferred; working time, 60 hours per week; Sunday duty, about 3 hours in 5 weeks; liberal terms and chances of promotion to good men. Apply, stating age, height, and references, and enclose carte, to The Southern Drug Company (Limited), Southampton.

SITUATIONS OPEN—Continued.

DISPENSER wanted, non-resident. Apply, after 8 P.M., "Surgeon," 186 Amhurst Road, Hackney Downs, N.E.

H. BARTON, Pharmaceutical Chemist, St. Ives, Hunts, requires an Assistant (indoors) about 21. State salary and references.

DISPENSING Assistant wanted (qualified), for good-class Business. P. Davidson, Pharmaceutical Chemist, 342 High Road, Kilburn, N.W.

WANTED, immediately, Traveller to work Midlands. Apply, stating age, experience, and references, to Smith & Sons, Wholesale Druggists, Norwich.

A QUALIFIED Assistant, to take charge of a Branch shop, wanted at once. State age, salary, and full particulars (personal interview preferred), J. S. Simcock, 311 Goswell Road, E.C.

IMPROVER or Junior, in a General Retail and Dispensing business; 1 other kept. Apply, with full particulars and references, 100/41, Office of THE CHEMIST AND DRUGGIST, 42 Cannon Street, E.C.

ASSISTANT wanted, good Junior, September 19, indoors, for high-class business; salary £40 per annum; knowledge of photography preferred, not essential. Apply with references (and c.d.v.), to "Alpha," c/o Barron, Harveys & Co., Giltspur Street, London.

WANTED, a fully-qualified Chemist and Druggist (outdoors), capable of opening and Managing a Business under a Surgeon. To an energetic young man this would be a splendid situation; wages 35*s*. weekly, with a commission on profits; the neighbourhood is pleasantly situated, with plenty of scope for ability. Apply, "Olive," Burkitt & Wimpenny, Exchange Buildings, Huddersfield.

FOR select Pharmacy in fashionable suburb, where 1 is kept, a gentleman is required as Assistant, who can command first-class references; must be a quick, accurate Dispenser, with good address and tact for Retail; one seeking a permanency preferred, who would value short hours and comfortable home. Apply personally, otherwise carte, &c., to Mr. Aefield, Surbiton Hill, Kingston-on-Thames, S.W.

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AS Locum or Manager; disengaged; qualified. B. C., 56 Adolphus Street, Deptford, London.

JUNIOR; 19; short hours; Manchester preferred; reference. A. Ellis, Post-office, Rusholme.

LOCUM; Trinity Square Llandudno; disengaged Sept. 23. "Locum," Chemist, The Cross, Ludlow.

LOCUM-TENENS or Manager; registered. H. Poole, 6 Castlewood Road, Stamford Hill, London, N.

MANAGER; Permanency or Locum-Tenens; qualified. D., 29 Parker's Row, Dockhead, S.E.

LOCUM-TENENS or Dispenser to a Surgeon; disengaged. Address, W. B., 4 Aston Street, Birmingham.

JUNIOR; now disengaged; good experience; excellent references. C., 20 Spring Terrace, North Shields.

JUNIOR; qualified; aged 23; good Dispenser; disengaged. W. Owen, Glanbeuno, Dwyran, Anglesea.

ENGAGEMENT wanted; temporary; aged 40; varied experience; disengaged. 136/18, Office of THE CHEMIST AND DRUGGIST, 42 Cannon Street, E.C.

LONDON.—Wanted, Junior Assistantship in good City house, about middle of September; indoors, where three or four others kept; just finished first-class country apprenticeship. F., c/o White & Chignell, Havant.

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LOCUM; qualified; Registered Dentist; moderate terms; disengaged. "Chemist," 37 Victoria Road, Stoke Newington.

LOCUM; Branch Assistant; good reference; outdoors preferred. "Minor," 7 Jubilee Terrace, Milford Hill, Salisbury.

AS Part-time Assistant (22) or time for study; Counter or Dispensing department. Holloway, 21 Montague Street, Worthing.

LONDON Wholesale; situation as Assistant; first-class experience. "Ferrum," Office of THE CHEMIST AND DRUGGIST, 42 Cannon St., E.C.

ASSISTANT; South Coast; qualified; aged 24; tall; good London and provincial experience. Thomas, Dorrington, near Shrewsbury, Salop.

JUNIOR (22½); Extractor; 5 years' experience; good address; Liverpool, Manchester, or suburbs. A. Thorp, Wellesley House, Newton-le-Willows.

AS Traveller for Drysalter, Mineral-water Maker, &c.; experienced; tall; good references; easy terms. "Papain," 22 South Street, Scarborough.

WANTED, situation as Dispenser, or in Wholesale, by a qualified man; no counter duty; abstainer. W. J. Stockdale, Market Place, Thirsk.

JUNIOR or Improver, in good Dispensing and Retail business; outdoors; references. "Styrax," c/o Willows Francis, High Holborn, W.C.

ASSISTANT or Manager (29); 5 ft. 7 in.; good references and experience; Extractor; married; unregistered; permanency. 75 George Street, Croydon.

ASSISTANT; aged 24; 8 years' experience; unqualified; Glasgow and Edinburgh; stores preferred. "Sargeant," 119 North Gate, Bury St. Edmunds.

DISPENSING Assistant to Surgeon; temporary or permanent, permanency preferred; aged 28; good references. "Fairburn," 185 Peckham Rye, S.E.

ASSISTANT; qualified; aged 23; abstainer; Dispense, Prescribe, &c.; good references; disengaged September 5. Ellisson, Hoyland Common, near Barnsley.

A SITUATION as Manager of a Branch or Dispenser to a Doctor, by a qualified Chemist; aged 46; height 5 ft. 9 in. "Alpha," 36 Porchester Road, Bayswater.

ASSISTANT; 21; 5½ years' experience in first-class dispensing; good references; London preferred. A. P., Regent Pharmacy, South Street, Eastbourne.

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DISPENSER; temporary or permanent; infirmary or medical; Lancashire preferred; single-handed. Address, "Dispenser," 75 Johnstone Street, Blackburn.

PART-TIME Assistant to Chemist or Surgeon, by student; experienced Dispenser, Prescribe, Extract; or Locum for September; 27. "Alpha," Criccieth, North Wales.

TRAVELLER requires re-engagement; salary and expenses; has represented well-known firm. 135/29, Office of THE CHEMIST AND DRUGGIST, 42 Cannon Street, E.C.

AS Junior; 21; 5 years' experience; passed medical preliminary; time for attending classes; Manchester preferred. "Chemicus," 1 Commercial Street, Coupar-Angus.

ASSISTANT or Dispenser (22), with time for day or evening classes; London or Edinburgh; good experience and references. Davidson, 188 Portland Road, Newcastle-on-Tyne.

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OUTDOORS only, or Management; Minor; aged 25. "Acer," 120 Kennington Park Road, S.E.

ASSISTANT, with time for study, in London or suburbs; aged 22. "Dispenser," 68 Trinity Square, Boro', London, S.E.

JUNIOR; accustomed to good-class business; 6 years' all-round experience; disengaged September 6. Apply, with particulars, to A. G., 53 High Street, East Grinstead.

IMPROVER or Junior; disengaged; Midlands preferred. E. C., Craig House, Forest Road, Loughboro'.

SITUATION in Laboratory required; good experience and reference. 6 Knebworth Road, Stoke Newington.

AS Locum-tenens, or permanent Manager of branch establishment, or for a widow; aged 35; Minor; good recommendations; disengaged. Nalgine, 25 Charlotte Street, Portsmouth.

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PUBLIC APOLOGY.

I, GEORGE WEST SARGENT, having written a Letter to the LOCAL BOARD OF HORNCASTLE reflecting on Messrs. W. KEMP & SON, Wholesale and Retail Druggists, and which was publicly read at the Meeting of the Board, do APOLOGISE and express my regret both to Messrs. W. KEMP & SON and to the HORNCASTLE LOCAL BOARD for sending such letter, and acknowledge that there was no foundation for the statements contained therein, and expressly WITHDRAW all Charges and Imputations arising in or from the said Letter, and publish this Apology at my own expense in the *Horncastle News*, *Lincoln Gazette*, *Chemist and Druggist*, and *Pharmaceutical Journal*, and have paid all costs occasioned by the Action brought against me by the said firm of W. Kemp & Son.

Dated this 6th day of August, 1892. GEORGE WEST SARGENT.

Witness—
ARTHUR S. WALTERS, Solicitor,
Clerk to
Messrs. SHEPHEARDS, Solicitors,
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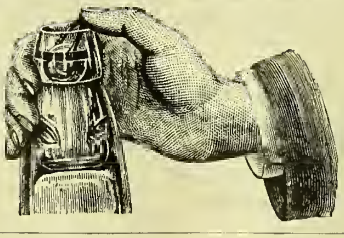

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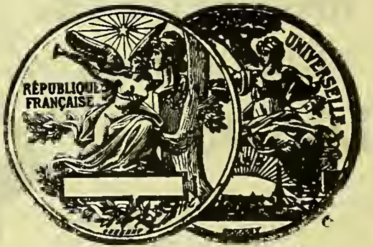

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GRANULATED EFFERVESCENT PREPARATIONS

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SPECIAL NOTICE.

ARMOUR & CO. have greater facilities for the manufacture of these products than any firm in the world, and for special requirements can supply Pepsin of any test up to 1 : 5,000 at a lower price than other manufacturers. Their pepsin testing 1 : 2,500 they have adopted as a standard form possessing high therapeutic value at a reasonable figure.

Powdered Pepsin.

(Non-Hygroscopic.)

For dry preparations. Absolutely permanent, and free from all foreign odour or taste.

Digestive power 2,500 times its weight.

1-oz. bottles 3/6

Scale Pepsin, and the same Powdered.

For liquid preparations. Perfectly soluble in water. Permanent with ordinary care. Retains its activity indefinitely.

Digestive power 2,500 times its weight.

1-oz. bottles 3/6

Glycerole Pepsin

(Concentrated).

A perfectly clear solution.

10 minims equal 1 grain of Armour's Pepsin in strength.

The Ideal Fluid Pepsin.

Bottles of 16 fluid oz.	6/3
Jugs of 128 „	29/-

Pure Pepsin Tablets.

A convenient dosage form.

Each tablet contains 3 grains of Armour's Pepsin.

In flat bottles containing 20 tablets	8/6 per doz.
„ „ „ 75 „	25/- „

Pure Pancreatin (Powder)

One of the purest Pancreatins of commerce.

The peptonising powers of all the Pancreatic ferments are preserved unimpared.

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Peptonising Tablets.

Pure Pancreatin	2½ grains.
Sodium Bicarbonate ..	8 „

For predigesting Milk and other foods for infants and invalids.

Uniformly Reliable.

In tubes of 15 tablets each .. .. 7/6 per doz.

Recipes for predigesting foods supplied.

Armour's Extract of Beef

Combines absolute purity with true flavour.

In use by H.M. and U.S. Governments. Invaluable in Sick-room or Kitchen.

Send for "Press Opinions."

Armour's Vigoral.

STRENGTH,
NOURISHMENT,
REFRESHMENT.

A fluid preparation of Armour & Co.'s Extract of Beef, further strengthened in muscle-forming constituents by the addition of pure beef in powdered form, suitably seasoned.

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CHICAGO, U.S.A.

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59 & 60 Tooley Street, LONDON, S.E.

WYETH'S
BEEF JUICE.

A liquid preparation of the Choicest Beef, containing the Nutritious Albuminous principles in an unaltered and soluble form.

Because WYETH'S BEEF JUICE is Pleasant and Agreeable to the taste.

Possesses five times more nourishing properties than other similar preparations.

Nutrient and stimulant properties so proportioned that it can be retained by the stomach in extreme cases of debility.

Two-ounce bottle contains all the Nutritious Albuminous principles of three pounds of clear lean meat.

Because these and many other points of superiority have been brought to the attention of Medical Men, Nurses, and Hospitals.

Because they have proven the claims *TRUE*, the demand for WYETH'S BEEF JUICE has become constant, and constantly increasing throughout Great Britain.

For the information of the

RETAIL CHEMIST

who has not already stocked WYETH'S BEEF JUICE we make this announcement.

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And all Wholesale Druggists and Chemists.

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JOHN WYETH & BROTHER,

Manufacturing Pharmaceutical Chemists,

PHILADELPHIA, PA., U.S.A. LONDON, 30 SNOW HILL, E.C.

THE
VIKING FOOD & ESSENCE CO.

HAVE REMOVED THEIR CITY ADDRESS TO

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Where all orders and communications should be addressed. Their New Factory at Camden Town is nearly complete, and is being fitted with new and improved appliances for turning out

THE MOST PERFECT MEAT PREPARATIONS FOR INVALIDS.

VIKING BEEF TEA JELLY.

VIKING ESSENCE OF BEEF.

VIKING PURE BEEF TEA
(Concentrated).

VIKING
INVALID TURTLE SOUP.

VIKING MEAT LOZENGES.

VIKING
"LIEBIG'S" EXTRACT.

VIKING
TURTLE CONSOMMÉ
(Clear Soup).

VIKING
TRADE MARK
FOOD & ESSENCE Co.
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VIKING
ESSENCE
OF BEEF
PREPARED FROM ENGLISH MEAT ONLY
GUARANTEED ABSOLUTELY PURE
STRENGTH & PURITY
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VIKING FOOD & ESSENCE Co. 3 WEST St FINSBURY CIRCUS
LONDON E.C.

The British Medical Journal says:
"The Preparations of this Company are pure and of very high quality."

The Lancet says:
"These Preparations seem to us as good as they could possibly be."

From THOMAS BOND, F.R.C.S., M.B., B.S., London, Surgeon to Westminster Hospital, 7 The Sanctuary, Westminster Abbey.

"I have much pleasure in stating that I have used the Viking Essence of Beef and the Invalid Turtle Soup among my patients. I have found them meet with universal approbation. I can state from my own experience that the Turtle Soup is the most delicious food I have ever met with for the sick-room; it is easily digested, and generally taken with relish, even when the appetite is most capricious. The Essence of Beef appears to me to be a thoroughly good and nutritious food."

[1]

The whole of the above articles are strongly recommended by the Medical Profession for Invalids. They are of the highest class and guaranteed perfectly pure, those preserved in GLASS being free from all risk of metal contamination, and therefore especially suitable for delicate persons.

These goods are packed in a tasteful and attractive style, and the reduced prices quoted enable our customers to sell at a lower price (and at the same time retain a substantial profit) and supply goods which Consumers will always ask for again.

THE VIKING BRAND IS A GUARANTEE OF STRENGTH & PURITY

EIGHT PRIZE MEDALS AWARDED.

GOODALL'S HOUSEHOLD SPECIALITIES.

YORKSHIRE RELISH.

Most Delicious Sauce in the World. Bottles, 6*d*., 1*s*., & 2*s*. each.

GOODALL'S BAKING POWDER.

The Best in the World. 1*d*. Packets; 6*d*., 1*s*., 2*s*., and 5*s*. Tins.

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One 6d. Tin is equal to 25 eggs. In 1*d*. Packets; 6*d*, 1*s*., and 5*s*. Tins.

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Delicious Custards without Eggs. In Boxes, 2*d*., 6*d*., & 1*s*. each.

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Delicious Blancmange in a Few Minutes. Boxes, 6*d*. and 1*s*. each.

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Best Tonic yet Introduced. Bottles, 6*d*., 1*s*., and 2*s*. each.

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Makes the Best Ginger-Beer. Packets, 3*d*. and 6*d*.

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A Rich and Lasting Perfume. Bottles, 1*s*., 2*s*., and 5*s*. each.

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Make a Delicious and Nutritious Jelly. In ½-pint, 1-pint and Quart Boxes, 3*d*., 6*d*., and 1*s*. each.

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Monthly Price List of Patent Medicines, Druggists' Sundries, &c., will be sent post free on application to

GOODALL, BACKHOUSE & CO., LEEDS

PARIS EXHIBITION, 1889.

PRIZE MEDAL AWARDED TO

"SALVO PETROLIA"

Absolutely Genuine Paraffinum Molle of the very Purest Form, and we claim that it is superior to Vaseline.

Manufactured by the Proprietors in Five distinct qualities—

WHITE, LEMON, YELLOW, GOLDEN, AND VETERINARY.

PACKED IN TINS, 1, 6, 10, 14, 28, 56, and 112 lbs. Also in 3-cwt. Casks.

"OLEUM DEELINÆ"

(REGISTERED).

UNIVERSALLY ADOPTED BY THE MEDICAL PROFESSION FOR

OPHTHALMIA, SCURVY, RINGWORM, ECZEMA, AND ALL SKIN-DISEASES.

For External and Internal Irritation of every kind.

PACKED IN CASES—

One Doz. 1s. 6d. Bottles; One Doz. 2s. 6d. Bottles.

Pint Bottles, 4*s*. 6*d*. each, for Hospitals and Dispensing Chemists.

TESTIMONIALS MAY BE HAD UPON APPLICATION.

"Edible Salvo Petrolia"

For Public Speakers, Actors, and Singers. 1*s*. 6*d*. per Tube.

The above are Manufactured Solely by the Proprietors,

THE DEE OIL COMPY.

LIMITED.

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And No. 1 GLASSHOUSE YARD, ALDERSGATE ST., LONDON,

Have now completed their **EXTENSIVE ALTERATIONS,** New Machinery and the most modern Appliances making their works the most complete of the kind in the Kingdom.

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Have gained a high reputation everywhere. **FOR EXPORT TRADE.** They are put up in 1-lb., 2-lb., and 5-lb. Bottles. Packed in Casks or in 1-doz. Cases as required, and delivered F.O.B. at any Port in England. These Sweets are absolutely pure. We specially recommend

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COMPRESSED PELLETS.

ALL KINDS IN ANY QUANTITIES.

CHLORATE OF POTASH PELLETS

IN 1-CWT. ORIGINAL BARRELS. BARRELS FREE.

HIGH-CLASS LOZENGES

OF EVERY DESCRIPTION.

THROAT HOSPITAL LOZENGES, COUGH LOZENGES, VOICE LOZENGES, TOP-NOTE PRODUCERS, &c., &c.

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"GRIPE WATER"

TRADE MARK.

TRADE MARK.

NOTICE The Proprietor guarantees that "WOODWARD'S GRIPE WATER" contains **NONE** of the **SCHEDULED POISONS.**

FOR WHOLESALE AND SHIPPING TERMS APPLY

THE PROPRIETOR, CHAUCER STREET NOTTINGHAM.

A NON-TOXIC ANTISEPTIC FOR BOTH INTERNAL AND EXTERNAL USE.

LISTERINE.

NON-TOXIC NON-IRRITANT, NON-ESCHAROTIC—ABSOLUTELY SAFE, AGREEABLE, AND CONVENIENT.

FORMULA.—Listerine is the essential antiseptic constituent of Thyme, Eucalyptus, Baptisia, Gaultheria and Mentha Arvensis, in combination. Each fluid drachm also contains two grains of refined and purified Benzo-boracio Acid.

DOSE.—Internally: One teaspoonful three or more times a day (as indicated), either full strength, or diluted, as necessary for varied conditions.

LISTERINE is a well-proven antiseptic agent—an antizymotic—especially useful in the management of catarrhal conditions of the mucous membrane, adapted to internal use and to make and maintain surgical cleanliness—asepsis—in the treatment of all parts of the human body, whether by spray, injection, irrigation, atomization, inhalation, or simple local application, and therefore characterized by its particular adaptability to the field of

PREVENTIVE MEDICINE—INDIVIDUAL PROPHYLAXIS.

LISTERINE destroys promptly all odours emanating from diseased gums and teeth. It is a perfect tooth and mouth wash, Indispensable for the Dental Toilet.

DISEASES OF THE URIC ACID DIATHESIS.

Lambert's Lithiated Hydrangea.

RENAL ALTERATIVE—ANTI-LITHIC.

FORMULA.—Each fluid drachm of "Lithiated Hydrangea" represents thirty grains of fresh Hydrangea, and three grains of chemically pure Benzo-Salicylate of Lithia. Prepared by our improved process of osmosis. It is invariably of definite and uniform therapeutic strength, and hence can be depended upon in clinical practice.

DOSE.—One or two teaspoonfuls four times a day (preferably between meals).

Close Clinical observation has caused LAMBERT'S LITHIATED HYDRANGEA to be regarded by physicians generally as a very valuable Kidney Alterative and Anti-lithic agent in the treatment of

Urinary Calculus, Gout, Rheumatism, Cystitis, Diabetes, Hæmaturia, Bright's Disease, Albuminuria, and Vesical Irritations generally.

REALIZING that in many of the diseases in which Lambert's Lithiated Hydrangea has been found to possess great therapeutic v is of the highest importance that suitable diet be employed. We have had prepared for the convenience of physicians

DIETETIC NOTES,

suggesting the articles of food to be allowed or prohibited in several of these diseases. A book of these Dietetic Notes, each note perforated and convenient for the physician to detach and distribute to patients, supplied, upon request, together with literature fully descriptive of Listerine and Lambert's Lithiated Hydrangea.

S. MAW, SON & THOMPSON, 7 to 12 Aldersgate Street, London, E.C.,
British Agents for the Products of **LAMBERT PHARMACAL CO.**, St. Louis, U.S.

Dr. J. COLLIS BROWNE'S

CHLORODYNE.

THE ORIGINAL AND ONLY GENUINE.

IMPORTANT CAUTIONS.

From Lord Chancellor SELBORNE, Vice-Chancellor Sir W. PAGE WOOD and the LORDS JUSTICES OF APPEAL.

VICE-CHANCELLOR SIR W. PAGE WOOD, by whom the suit in Chancery was first heard, stated in his judgment that "Dr. J. Collis Browne was undoubtedly the Inventor of Chlorodyne, that the whole story of the Defendant Freeman was as deliberately untrue as the falsehood he had deposed to with reference to the use of his Chlorodyne in the Hospital."

The VICE-CHANCELLOR also stated, "that Chlorodyne was a fanciful name, and had application been made sooner, the Court would have given Dr. Browne protection."

LORD CHANCELLOR SELBORNE coincided with the judgment of the Vice-Chancellor upon this point, and stated, "that had application been made at a proper time and place, the Court would have found means to restrain the Defendant from misrepresenting the decision of the Vice-Chancellor."

LORD JUSTICE JAMES, on appeal, stated in his judgment, "that the Defendant Freeman had made a deliberate misrepresentation of the decision of Vice-Chancellor Wood."

It was proved in Court, on affidavit by Mrs. Forbes, of Paris, that the testimonial published in the *Times*, November 14th, 1865, speaking of the great efficacy of Chlorodyne in Cholera, referred to Dr. J. Collis Browne's Chlorodyne, and that she never used any other, that she had written to the Defendant Freeman to that effect; notwithstanding which notice the Defendant publishes the said testimonial as referring to his medicine.

The Editor of the *Medical Times*, in his report on Chlorodyne, January 13th, 1866, gives information that the Chlorodyne referred to was the medicine introduced by a retired Army Medical Officer, which was Dr. J. Collis Browne; still this is published by the Defendant as testimony to his medicine.

Numerous affidavits from eminent Physicians and others were produced in Court, stating that Dr. J. Collis Browne was the inventor of Chlorodyne, and that when prescribing they mean no other.

The Defendant himself publishes that his compound is in effect and composition quite different to any other preparation; nevertheless he assumes the name, testimonials, &c., of Chlorodyne.

Technicalities in law prevent that protection which the public should justly have against such a course of conduct. It is now incumbent on all who purchase Chlorodyne to see that the name, Dr. J. Collis Browne's Chlorodyne, is engraved on the Government Stamp, as it is not sold otherwise. All other compounds under the name of Chlorodyne are spurious. All attempts at analysis have failed; hence the statement that the constituents of Chlorodyne are known is a misrepresentation.

ORIGINAL AND

ONLY GENUINE.

FURTHER IMPORTANT NOTICE.

The subjoined list of eminent Firms concur with Vice-Chancellor Sir W. Page Wood's statement in Court, that Dr. Collis Browne was undoubtedly the Inventor of Chlorodyne; and that when Chlorodyne, or the Original Chlorodyne, is ordered, they invariably supply Dr. J. Collis Browne's:—

Apothecaries' Hall,	London
Allen, Hanbury & Co.,	"
Baiss Brothers,	"
Banks & Richards,	Birmingham
Barron, Harvey & Co.,	London
Bell, John, & Co.,	"
Bourne & Taylor,	"
Corbyn & Co.,	"
Cox & Gould,	"
Curling & Co.,	"
Curtis & Co.,	"
Davy, M'Murdo & Co.	"
Dobbin. W., & Co., Limited,	Belfast
Drew, Barron & Co.,	London
Drew, B., & Alexander,	"
Dunn & Company,	"
Edwards, W.,	"
Evans, Gadd & Co.,	Exeter
Evans, Lescher & Webb,	London
Ferris & Co.,	Bristol
Foulger, S., & Son	London
Frazer & Green,	Glasgow
Gale & Co.,	London
Giles & Son,	Clifton
Goulding, Messrs.,	Cork
Gratton & Co.,	Belfast
Grimwade, Ridley,	London
Grindley & Son,	Chester
Hearon, Squire & Francis,	London
Hodgkinson, Tonge & Stead,	"
Hopkins & Williams,	"
Hovenden, R., & Sons,	"
Hunt & Co.,	Exeter
Hunt, A., & Co.,	"
Johnson, J. H. & S.,	Liverpool
Langton, W., & Co.,	London
Lynch & Co.,	"
Mander, Weaver,	Wolverhampton
Marsden & Sons,	London
Maw & Son,	"
Meggeson & Co.,	"
Mackay, John, & Co.,	Edinburgh
Morson, T., & Son,	London
Newbery & Sons,	"
Oldham, G., & Co.,	Dublin
Parsons & Richardson,	Leicester
Peake, Allen, & Co.,	Dublin
Raimes & Co.,	York
Raimes & Co.,	Edinburgh
Sang & Barker,	"
Sanger, J., & Sons,	London
Sim, James, & Co.,	Aberdeen
Smeeton, W.,	Leeds
Southall & Co.,	Birmingham
Sutton, W., & Co.,	London
Tomlinson, Hayward & Co.,	Lincoln
Treacher, Hodgkinson & Co.,	London
Westrup, J. B.,	Kensington
Westwood & Hopkins,	London
Woolley, James,	Manchester
Wyleys & Brown,	Coventry
Yates & Co.,	London

After these public statements in a Court of Equity, and subsequent confirmation by the Trade at large, no Chemist can conscientiously use or sell any other compound for Chlorodyne without committing a breach of faith, unjust to patient and physician. The value of the remedy *alone* creates the great demand.

Sold in Bottles—1s. 1½d., 2s. 9d., 4s. 6d., and 11s. Usual Discount to the Profession.

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J. T. DAVENPORT, Pharmaceutist,

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	Per cwt.
200 Reams Ochre Glazed Brown Double Imperial, 29 by 45 in. (assorted weights), 80 lbs., 100 lbs., 120 lbs., 140 lbs. ..	13/-
85 Reams Ochre Glazed Bag Cap, 20 by 24 in., 35 lbs. ..	14/-
75 Reams Double Imperial Brown, 29 by 45 in., 120 lbs.	9/-
60 Reams Double Imperial Brown, 29 by 45 in., 120 lbs.	12/-
	Per ream
40 Reams Extra Special Thin and Tough Double Imperial, 29 by 45 in., 65 lbs.	9/6
60 Reams Thin Brown Casing, 35 by 44 in., 38 lbs.	6/-
140 Reams Super Rag Small Hand, 16 by 24 in.	1/4

LIGHTING TAPERS.

2,300 lbs., 22 inch, Thick and Thin.
Per lb. 9*d*.

GLUES & GELATINES.

Upwards of 100 tons in stock.
Free samples to match almost any glue that is made.

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"MAGIC" FIRE LIGHTERS.

Saleable all the Year round.
Best Fire Reviver made.

Made in Sweden, and packed in Chip Boxes, containing one dozen lighters, to retail at 1*d*. per box.
Per gross boxes, 5/6.

BRILLIANT BELGE.

The best Liquid Metal Polish in the world.

6*d*.	8*d*.	1/- and 1/6 bottles.
3/-	4/-	7/6 12/- dozen.

"MAGIC"

POCKET SAVINGS BANK.

Locks itself, Registers the amount deposited, and can only be opened when £1 in sixpences has been deposited. Per dozen, 3/6.
Also those to hold 1/ in half-pence, per gross, 9/-

WOOD WOOL,

OR

Wood-Fibre Packing.

This is used extensively for packing purposes in place of straw, &c. We use it largely, and can recommend it.
In bales of 1 cwt.
Per 7/- cwt.

CHAMOIS SPONGES.

This is a useful article. It is made of small pieces of Chamois Leather cuttings strung, and may be used for both sponge and leather, for washing Carriages, Paintwork, and Windows.

Per dozen 1/4
Per gross 14/-

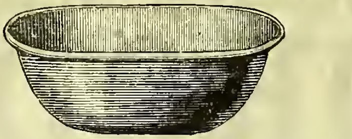
CHEAVIN'S

WORLD-RENOWNED

FILTERS.

W. B. FORDHAM & SONS, LIMITED,
36 TO 40 YORK ROAD, KING'S CROSS,
LONDON, N.

"OVAL UNBREAKABLE" TUBS.



Light, Strong, Durable. No hoops to drop or rust off. Measurement 16 inches. Enamelled White inside; Marbled outside. No house or nursery complete without them. Price per doz., 21/-.

CHEMISTS' DISPLAY BOWLS.

HANDSOMELY DECORATED AND UNBREAKABLE.

IN TWO SIZES.

10 inch	11/3	13 inch ..	18/- per doz.

IN PLAIN OAK.

10 inch	9/-	13 inch ..	15/- per doz.

We publish an

ILLUSTRATED PRICE LIST,

Containing a number of useful articles in this Ware. We are constantly applying our Patent Pulp to new uses; articles made in it have no hoops to rust or fall off, and when more generally known its use will be appreciated all over the world.

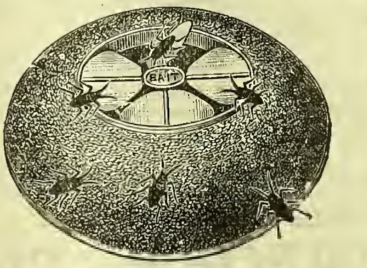
BROOKE'S SOAP.

"MONKEY" BRAND.

100 Bar Cases, 25/-
60 „ 15/-
48 Half Bars, 6/3

If any difficulty in obtaining in any part of the world, write Sole London Consignees—
"FORDHAMS LONDON."

THE "DEMON" BEETLE TRAP.



Patent No. 2512. Success guaranteed. Catch thousands where other traps fail. Is always ready for use, and will deceive and catch the sharpest Beetle. Price, per doz., 8/6. Special prices to Merchants and Shippers in 1-gross lots.

W. B. FORDHAM & SONS, LIMITED,
36 TO 40 YORK ROAD, KING'S CROSS,
LONDON, N.

TOILET PAPERS

Perforated 12-oz. Rolls.

Standard Extra Super Quality—
5/6 per dozen .. 44/- per 100 Rolls.
Second Quality—
4/- per dozen .. 30/- per 100 Rolls.
Third Quality—
3/3 per dozen .. 22/6 per 100 Rolls.

In Packets of about 500 Sheets.

Per dozen Packets 1/10
Per gross 20/-

AMERICAN

SILVER SOAP.

37 gross Colgate's 6*d*. Tablets, in boxes of 1 dozen, per box, 2/6.
It is impossible to have a better Silver Soap than this.

"VOGT'S" POMADE

(HELMET BRAND).

140 gross, small size, per gross .. 6/10½
80 „ large „ „ .. 19/-

ICE CREAM FREEZERS.

The "White Mountain," "Granite State," "Star," "Jack Frost."

We hold a large stock, and will give advantages to buyers during August and September.

HERBERT'S

MEDICINE DROPPER

(REGISTERED).

Each one in a handsome slide box.
Per dozen, 1/.

ROTARY HAND OIL PUMP.

They always give great satisfaction.

A BOY can pump a BARREL of OIL in FOUR MINUTES.

120, No. 1.	39, No 2.
42/- each.	49/- each.

Fullest particulars upon application.

FRUIT AND VEGETABLE PARER.

A Fruit & Vegetable Peeler
Slicer,
Potato Eye Scooper,
Grater, Cutter, Chopper,
Chip Potato Cutter, and
Apple Corer,
ALL COMBINED.

It is made of the BEST SHEFFIELD STEEL, and is covered with PURE TIN to prevent rusting.
Price per doz., 4/-, or 45/ per gross.

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Newsome, C.	73
Northern School	12
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Orridge & Co.	*Coloured Supplement*
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CLASSIFIED LIST OF ALL ADVERTISERS

ACETIC ACID
Fuerst Bros.
Greeff, R. W., & Co.
Morris & Callard (Salts)

ADVERTISING SPECIALITIES
Lawton, J. W.
Sears, F. W.

AERTD & MINRLS
Apollinaris Co.
Barnett & Foster
Chemists' Aërated Waters Association (Lim.)
Ellis & Son (Ruthin)
Gerolstein
Hassall & Co. | Hay, W
Hulsen, J., & Co.
Idris & Co.
Ingram & Royle
Jewsbury & Brown
Johannis Spring (Lim.
Mills & Co. (Bourne)
Schweppe, J., & Co

DITTO PLANT
[See SYPHONS and ESSENCES.]
Barnett & Foster
Bratby & Hinchliffe (Lim.)
Gueret Frères
Tyler, Hayward, & Co.

AGENCIES ABROAD
Australian Drug Co.
Kempthorne, Prosser & Co.
Lennon, S. G., & Co. [(N.Z.)
Levy, Jules
Peake, Allen & Co.
Prosser, Taylor & Co.
Rooks, Tompsitt & Co. (Melbourne)
Sharland & Co.
Soul, W. H., & Co.

ALKALOIDS
Howards & Sons (Cinchona)
Smith, T. & H., & Co.

ALMANACKS
Ford, Shapland & Co
Hildesheimer & Faulkner
Silverlock, H.
Townsend, J.

AMMONIA
May & Baker (Lim.)
White, A., & Sons
Woolley, Sons & Co.

APPARATUS
Hicks, J. J.
Ohlson, A.
Orme, J., & Co (Scientific)
Perken, Son & Rayment
Poths, H., & Co.

BAKING POWDER
Goodall, Backhouse & Co.

BANDAGES
Bailey, W. H., & Son
Robinson & Sons
Schutze, F., & Co.
Warne & Co.

BEESWAX
Boehm, F.
Bowdlear W. H., & Co.
Taylor, A. J., & Co.

BICARB. SODA
Brunner, Mond & Co. (Lim.)
Howards & Sons
May & Baker (Lim.)

BISMUTH PREP.
Hearon, Squire & Francis
Hewlett & Sons
Howards & Sons
May & Baker (Lim.)
Symes & Co. | Tyrer, T., & Co.
White, Alfred, & Sons

BOOKS
Hargreaves, Dr., M.D.
Herschell, Dr. | Muter, Dr.

BORAX
Howards & Sons
Mack's Starch
Mear & Green

BOTTLES
Aire & Calder Bottle Co. (Lim.)
Barnett & Foster
Barrett, R. H.
Bratby & Hinchliffe (Lim.)
Bush, H. W., & Co.
Evans, Sons & Co.
Gilbertson, H., & Sons
Hearn, E. A., & Co.
Isaacs & Co.
Johnsen & Jörgensen
Kilner Bros.
Poths, H., & Co.
Shirley, A. W.
Toogood, W.
"W. Brand Bottles"
Youldon, E.

BOXES
Austin & Co. (Cardboard)
Evans, Sons & Co.
Parmenter, I. W., & Co (Lim.)
Robinson & Sons

BRUSHES
Evans, Sons & Co.

BUNSEN BURNERS
Berend & Co.

BUTTER COLR, &c.
Boulton, J. & Co. (Lim.)
Crawshaw & Co.
Fullwood & Bland
Hatrick & Co. (Lim.)
Oldfield, Pattinson & Co.

CAMPHOR
Fuerst Bros.
Howards & Sons
May & Baker (Lim.)

CAPSULES
Denoual, J. (Medicinal)
Duncan, Flockhart & Co.
Evans, Sons & Co.
Hatrick & Co. (Lim.)
Hooper, B., & Co.
Mason, C. E., & Co.
Richardson, John, & Co. (Leicester), Lim.

CSCRA SAGRADA
Duncan, Flockhart & Co.
Evans, Sons & Co.
Ferris & Co. | Moss, J., & Co

CASTOR OIL
Allen & Hanbury [Fuerst Bros
Christy & Co. (Aromaticum)
Greeff, R. W., & Co.

CATALOGUE
Maw, S., Son & Thompson
May, Roberts & Co.
Sanger & Sons'

CHECK TILLS
National Cash Till Co.
Patent Voucher Check Till Co. (Lim.)

CHEMICALS
Boehm, F.
Boehringer, C. F., & Sohne
Boulton, J., & Co. (Lim.)
Bramwell, E., & Son
Brunner, Mond & Co. (Lim.)
Fletcher Fletcher & Stevenson
Fuerst Bros.
Goodall, Backhouse & Co.
Greeff, R. W., & Co.
Harrington Bros.
Hill, A. S., & Son [Clarke
Hodgkinsons, Treacher &
Howards & Sons (Pharm.)
Levermore, Ang., & Co.
Lofthouse & Saltmer
Lorenz, H.
May & Baker (Lim.)
Morris & Callard Moss & Co.
Smith, T. & H., & Co.
Tyrer, T., & Co.
Washington Chemical Co.
White, A., & Sons
Zimmermann, A. & M.

CHEST PROTCTRS
Hockin, Wilson & Co.
Liverpool Patent Lint Co.
Lynch & Co.
Newbery, F., & Sons
Pattison, G. | Solport Bros.

CHLRIDE OF LIME
Government Sanitary Co.
National Chemical Co.

CHLORODYNE
Davenport (Browne's
Towle, A. P. & Son

CHLOROFORM, &c.
Duncan, Flockhart & Co.
Greeff, R. W., & Co.
Macfarlan, J. F., & Son
Salamon & Co. (Lim.)
Smith, T. & H., & Co.
Wright, Layman & Umney
Zimmermann, A. & M.

CITRIC ACID
Hassall & Co. (Phospho)

COCAINE-HYDRO.
Howards & Sons

COCA WINE
Armbrecht, Nelson & Co.
French Hygienic Soc.
Stephen Smith & Co. (Hall's)

COCOA & CHOCLTE
Cadbury Bros. | Christy & Co
Rowntree & Co.

COD-LIVER OIL
Allen & Hanburys
Burroughs, Wellcome & Co.
Evans, Sons & Co.
Greeff, R. W., & Co.
Hill, A. S., & Son
Hockin, Wilson & Co.
Lofthouse & Saltmer
Smith, T. J.
Woolley, Sons & Co.

COFFEE
Symington, T., & Co. (Coffee Essence)

COLPSIBLE TUBES
Betts & Co.

COMP. MEDICINES
Allen & Hanburys
Blyton, Astley & Co.
Burroughs, Wellcome & Co.
Fuerst Bros.
Hooper, B., & Co. | Leo & Co.
Leo & Co.
Lloyd, T. H., & Co.
Richardson, J., & Co.

CONCENT. LIQS.
Fletcher, Fletcher & Stevenson
Lloyd, T. H., & Co.
Wood, Cooper & Co.

CONFECTIONERY
Blyton, Astley & Co.
Crawshaw & Co.
Gibson, R., & Sons
Guest, T., & Co.
Pascall J.
Southwell, C., & Co.
Warrick Brothers

CORN CURES
Pattison, G.
Solport Bros.

COTTON WOOL
Haynes, G., & Co. (Absorbent)
Robinson & Sons (Absorbent)
Sanger, J., & Sons
Seabury & Johnson [septics
Sedox, Absorbents, and Anti-

CRSHD LINSEED
Graham, W., & Co.
Mumford, S. G.

DENTIFRICES
Beecham, T.
Bronnley, H., & Co.
Jewsbury & Brown
Lakeman, J. J.
Quelch, H. C.
Stevens, P. A.
Sutton, C., & Co.
Thompson & Capper
Warrick Bros. | Wilson, A.
Woods, W. (Areca Nut)

DISINFECTANTS
Calvert, F. C., and Co.
Ellison, H.
Fletcher Bros. & Co.
Government Sanitary Co.
Grindley & Co. (Lim.)
Jeyes' Fluid
Mason, C. E., & Co.
National Chemical Co.
Sanitas Co.
Seabury & Johnson
Star Chemical Co.
Tyrer, Thos., & Co.

DOG MEDICINES
Spratts Patent (Lim.)

DRUGGISTS' SUN.
Ayrton & Saunders
Bailey, M., & Co.
Barclay & Sons (Limited)
Beaulette Co.
Bush, H. W., & Co.
Chemists' Mineral Water Association (Lim.)
Evans, Lescher & Webb
Evans, Sons & Co. (Savars)
Fordham, W. B., & Sons (Lim)
Gilbertson, H., & Sons
Hockin Wilson & Co.
Idris & Co.
Kay Bros. (Lim.)
Lorimer & Co.
Lynch & Co.
May, Roberts & Co.
Newbery, F., & Sons
Quelch, H. C.
Sanger & Sons
Schutze & Co.
Tidman & Son
Toogood W.
Wood, Vincent Young, J.

DRUG MILLS
Burroughs, Wellcome & Co.

DYES, &c.
Crawshaw & Co.

EAU DE COLOGNE
Farina, J. M.
Hockin, Wilson & Co. (Farina)
Martin, Maria (Nun)
Oscar, Moenich & Co.

ELECTRIC APPAR.
Darton, F., & Co.
Gent & Co.
Orme & Co.

EMBROCATION
Burn, H.
Day & Sons
Elliman, Sons & Co.

ENEMAS
Evans, Sons & Co.
Sanger & Son
Scriven G.
Warne & Co.

ENGRAVERS
Barker, W., & Son
Corsan, J. R.

ESSENCES
Beckett, W. | Berger, F.
Boehm, F.
Boulton, J., & Co.
Bratby & Hinchliffe (Lim.)
Burgoyne, Burbidges & Co.
Bush, W. J., & Co.
De Carle & Son
Fletcher, Fletcher & Stevenson
Goodall, Backhouse & Co.
Hay, W.
Idris & Co.
Lambert, Samuel, & Co.
May & Baker (Lim.)
Meadowcroft & Son
Newball & Mason
Oldfield, Pattinson & Co.
Stevenson & Howell
Tyrer, P. (Anchovies)
Tyrer, T., & Co.
Woolley, Sons & Co.

ESSENTIAL OILS
Berger, F.
Boehm, F.
Bush, W. J., & Co.
Clay, Dod & Co.
Cocking & Co. (Japan Peppermint)
Dodge & Olcott
Evans, Sons & Co.
Hodgkinsons, Treacher & Clarke
Lewig, M.
May & Baker (Lim.)
Meadowcroft & Son
Poppelreuter, W.
Robert Frères
Sozio & Andrioli
Schlesinger, L.
Stevenson & Howell
Symes & Co.
Tombarel Freres
Treatt, R. C.
Vogt, G., & Co.
Warrick Bros.
Wright, Layman & Umney

ETHER
Duncan, Flockhart & Co.
Howards & Sons
May & Baker (Lim.)
Robbins, J., & Co.
Tyrer, T., & Co.
White, A., & Sons
Woolley, Sons & Co.
Wright, Layman & Umney

EUCALYPTUS
Downie B. I. P. Co.
Drysdale, J. W. & Co.
Evans, Lescher, & Webb
Fletcher, Fletcher & Stevenson
Tasmanian Eucalyptus Oil Co.
Vogt G., & Co.

EXTRACT MEAT
Brand & Co.
Bush's Liquid Beef
Denaeyer's Peptone and Extract of Meat Co. (Lim.)
Idris & Co. (Viking Co.)
Liebig Co.
Liquor Carnis Co. (Lim)
Mason, G., & Co. (Lim.)
Wyeth, J., & Brother

EXTRACTS, FLUID
Allen & Hanburys
Anderson & Co.
Barber, G., & Co.
Burgoyne, Burbidges & Co.
Evans, Sons & Co.
Fletcher, Fletcher & Stevenson
Hearon, Squire & Francis
Hooper, B., & Co.
Lloyd, T., Howard & Co.
Moss & Co.
Potter & Clarke
Vogt, G., & Co.
Wright, Layman & Umney

FEEDING BOTTLES
Burroughs, Wellcome & Co. (Thermo Safe)
Evans, Sons & Co.
Hearn, E. A., & Co.
Hockin, Wilson & Co.
Kilner Bros.
Lynch & Co.
Marriott, E., & Co.
May, Roberts & Co.
Maw, S. Son & Thompson

FILTERING
Berkefeld Filter Co.
Fordham, W. B., & Sons (Ld.)
Mawson, Swan & Weddell
Silicated Carbon Filter Co.

FLESH GLOVES
Pattison, G.

FLY PAPERS
Ford, Shapland & Co.
Mather, W.
Maw, S., Son, & Thompson
Tunbridge & Wright
Wilson, S.

FOOD (Infants' & Invalids')
Allen & Hanburys
Benger's Food
Bovril
Brand & Co.
Evans, Sons & Co.
Goodall, Backhouse & Co.
Hearon, Squire & Francis
Idris & Co
King, F., & Co. (Lim.)
Liebig Co.
Liquor Carnis Co. (Lim.)
Nestlé, H.

FORMULA
Brooks, T.

FRUIT JUICES
De Carle & Son

GINGER ALE
Hay, W. (Essence)
Mills, R. M., & Co.

GLYCERINE
Blyton Astley & Co. (Pastilles)
Boehm, F. | Fink & Co.
Fuerst Bros.
Greeff, R. W., & Co.
Lynch & Co.
Price's Candle Co.
Taylor, A. J., & Co.

GRANULAR PREP.
Bishop, A., & Sons
Evans, Sons & Co.
Hearon, Squire & Francis
Lloyd, T. H., & Co.
Wright, Layman & Umney

GRIPE WATER
Woodward, W.

GUM
Fink & Co. (Arabic, &c.)
Greeff, R. W., & Co.
Levermore, Aug., & Co.
Taylor, A. J., & Co.

HAIR PREP.
Anglo-American Drug Co. (Lim.)
Chesebrough Mnfg. Co.
Edwards & Co.
Truefitt, H. P. (Lim.)

HERBALISTS
Newball & Mason
Potter & Clarke

HERB BEER EXTS
Newball & Mason
Oldfield, Pattinson & Co.
Potter & Clarke

HOMŒOPATHIC
Keene & Ashwell
Leath & Ross
Thompson & Capper
Watson & Wates

HYPOPHOSPHTES
Duncan, Flockhart & Co.
Fellows
Fletcher, Fletcher & Co.
Symes & Co.
Tyrer, Thomas, & Co.

INHALERS
Burroughs, Wellcome & Co.
Hockin, Wilson & Co.
Lynch & Co.
Spirone, Co., The
Toogood, W.

INK [See Marking Inks]
Bewley & Draper

INSECTICIDES
Keating, T.
Steiner & Co.

INSURANCE
London and Lancashire Fire Insurance Co.

KETCHUP
Tyrer, P.

LANOLINE
Burroughs, Wellcome & Co.

LARD
Ewen, J., & Sons

LIME JUICE
Southwell, C., & Co.

LINT
Haynes, G., & Co.
Liverpool Lint Co.
Newsome, C.
Robinson & Sons
Seabury & Johnson

LIQUORICE
"Solazzi"

LITHIA
Fuerst Bros.

LOZENGES
Allen & Hanburys
Blyton, Astley & Co.
Gibson, R., & Sons (Manfrs.)
Hill & Son
Jackson, T.
Raimes & Co.
Warrick Bros.

MACHINERY
Bennett, Sons, & Shears
Burroughs, Wellcome & Co.
Gardner, W.
Leete, Edwards & Norman, Ld.
Ohlson, A.
Pindar, J. W.
Pontifex & Wood (Lim.)
Werner & Pfleiderer (Kneading and Sifting)

MAGNESIA
Bush, W., Son & Co.
Evans, Sons & Co.
Greeff, R. W., & Co.
Henry, T. & W. (Calcined)
Hill & Sons, A. S.
Washington Chemical Co.

MALT EXTRCT, &c.
Allen & Hanburys
Anderson & Co.
Burroughs, Wellcome & Co. (Kepler's)
Hearon, Squire & Francis
Raimes & Co.
Richardson, John, & Co. (Leicester), Lim.
Wyleys & Co.

MANICURE PREP.
Dr. Paul's

MARKING INKS
Barber, G., & Co. (Crimson)
Bond, John (Crystal Palace) (Ink and Pencils)
Perry & Co. (Pencil)

MEDICINE CHSTS
Burroughs, Wellcome & Co.
Day, Son & Hewitt (Veterinary)
Day & Sons (Veterinary)

MENTHOL
A 1 Menthol Depot, A. W. Shirley, Proprietor.
Cocking & Co.
Evans, Sons & Co.
Hockin, Wilson & Co.
Seabury & Johnson
Tyrer, P.

MERCURIALS
Fuerst Brothers
Howards & Sons
May & Baker (Lim.)
Tyrer, Thomas, & Co.

METH. SPIRITS, &c.
Boord & Son
Burrough, J.
Harvey, J. & W., & Co
Jones & Co.
Phillips, G., & Co
Smith, S., & Co.

METHYLENE
Robbins, J., & Co.

MICROSCOPES
Darton, F., & Co.
Newsholme, G. T. W. (Slides)
Perken, Son & Rayment

MILK
Nestlé, H. (Condensed)

MORPHIA
Macfarlan, J. F., & Co.
Smith, T. & H., & Co.

OILS, PAINTS, &c
Fleming, A. B., & Co. (Lim.)
Fox, W., & Sons

OINTMENT BASES
Burroughs, Wellcome & Co.
Chesebrough (Vaseline)
Grindley & Co. (Petroleum Jelly)
Richardson, J., & Co. (Lim.)

OPTICIANS
Botwright & Grey
Darton, F., & Co.
Perken, Son & Rayment

OTTO OF ROSE
Fuerst Bros.
Shipkoff & Co.
Treatt, R. C.

PETROLEUM
Allen & Hanburys
Barclay & Sons (Lim.)
Dee Oil Co. (Lim.)
Fuerst Bros. (Jelly)
Grindley & Co. (Jelly)
Snowdon, Sons & Co. (Jelly)

PAPAÏN
Kühn B. (Dr. Finkler)

PATENT AGENTS
Horn & Son

PATENT MEDCNS
Anglo-American Drug Co. (Lim.)
Atkinson & Barber (Infant Preserv)
Barclay & Sons (Lim.
Beecham, T. (Pills)
Bow's, Dr., Liniment
Bromley, C.
Chemists' Association
Clarke's Blood Mixture
Edwards & Son
Evans, Lescher & Webb
Fenning's (Powders)
Goodall, Backhouse & Co.
Guy's Tonic
Hakka Cream (A. P. Bush & Co.)
Holloway (Pills and Oint.)
Hovenden & Sons
Kreat Halviva
Laibr (Phosphodyne, &c.)
May, Roberts & Co.
Morison's Ointment
Newbery & Sons
Roberts & Co. (Foreign)
Sequah (Lim.)
Sutton, W., & Co.
Wilson, A. (Bunter's Nervine)
Zirrizmah

PEPSINE, &c.
Armour & Co.
Burroughs, Wellcome & Co.
Chassaing & Co.
Fletcher, Fletcher & Stevenson
Greeff, R. W., & Co.
Newbery, F. & Sons (Ingluvin)
Stern, G. & G.
Warner & Co. (Ingluvin)
Wyleys (Lim.)

PEPPERMINT OIL
Bush, W. J., & Co.
Cocking & Co.
Stevenson & Howell

PERFUMERY, FANCY SOAPS
Barclay & Sons, Lim.
Bayley & Co.
Beaulette Co.
Blondeau & Cie.
Boehm, F.
Brooks, T. (Solid Perfume)
Burroughs, Wellcome & Co.
Bush, W., & Co.
Cavallier Frères
Chesebrough Mnufctring Co
Evans, Sons & Co.
Ewen, J., & Sons
Farina, J. M.
Giraud Fils
Grossmith, J., & Sons
Hovenden & Sons
Mulhens, F.
Newbery & Sons (Berdoes)
Oftinger, E.
Pears' Soap (Lim.)
Price's Patent Candle Co.
Robert Frères
Rosmarine Manufg. Co.
Sainsbury, S. (Lav. Water)
Shirley, A. W.
Sozio & Andrioli
Thompson, Walters, Hole & Co. (Lim.)
Tidman & Son
Tombarel Freres
Treatt, R. C.
Truefitt, H. P. (Lim.)
Warrick Brothers
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"HARLENE"

World-renowned Hair Producer and Restorer.

ANOTHER HANDSOME SHOW-CARD

IN 15 COLOURS, FRAMED, NOW READY,

Will be sent, Carriage Paid, also Counter Bills, with Name and Address of Agent, on application

NOTICE.

As no more Coupons will be issued by us, every Chemist should provide a stock of 3/6 and 5/6 bottles, to meet the coming demand.

SPECIAL TERMS TO BUYERS OF £2 10s. AND UPWARDS.

1s., 2s. 6d., 3s. 6d., and 5s. 6d. per Bottle, from Chemists, Hairdressers, and Perfumers all over the world.

MANUFACTURED ONLY BY

EDWARDS & CO., 95 HIGH HOLBORN, LONDON, W.C.

SOZIO & ANDRIOLI

(Alpes Maritimes) **GRASSE** (France). [Established A.D. 1757.

SPECIALITIES: Oils of Neroly, Lavender, Geranium (twice rectified on Rose Flowers), Thyme (red and white), Spike Lavender, Rosemary, Patchouly, Sandal Wood, &c., &c.

ONLY MAKERS OF THE CELEBRATED ORRIS ROOT OIL, crystallizing at + 15° Réaumur.

Flowers Pomades at the highest possible Saturation. Best Brand for Orange Flowers and Rose Water. Concentrated Essences, Sweet Almond Oil, &c. Stock kept in London.

London Agent—MR. FREDK. BOEHM, 4 CULLUM ST., E.C.

ESTABLISHED IN 1785.

MODEL FLOWER FARM & STEAM FACTORY.

CAVALLIER FRÈRES,

GRASSE, FRANCE.

Essential Oils, Pommades, Extracts, Distilled Waters, Almond and Olive Oils.

CHERIMOLIA BLOSSOM

A New Perfume without rival.

Depot:—BAISS BROS., 4 JEWRY STREET, LONDON.

---

50 YEARS SUCCESS

HOPGOOD'S NUTRITIVE & SEDATIVE HAIR CREAM.

The *only* preparation for the Hair recommended by leading Physicians for the removal of Scurf, allaying irritation, preventing greyness and baldness, and producing a LUXURIANT HEAD OF HAIR.

John A. Walcott, M.D., M.R.C.S., says:—"I feel much pleasure in being able to recommend (with confidence) your NUTRITIVE CREAM in all cases of irritation of the scalp, accumulation of dandriff and loss of hair, in each of which I have freely used it with UNFAILING SUCCESS."

In Bottles to Retail at 1/6, 2/6, and 3/6. Revised Wholesale Prices, 12/6, 20/-, 30/- per doz. Supplied by all Wholesale Sundry Houses,

OR FROM THE DEPOT—

OSBORNE, CARRETT & CO., 51 Frith St., Soho., **LONDON, W.**

GENUINE EAU DE COLOGNE.

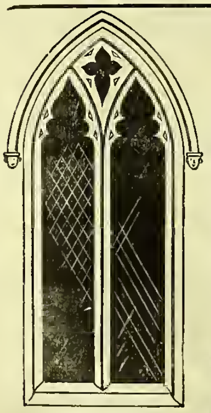
JOHANN MARIA FARINA, Gegenüber dem Laurenz Platz,

Has the second largest sale amongst Chemists in the United Kingdom.

2 oz.	4 oz.	½ Pint Wicker.	Pint Wicker.	Quart Wicker.
7/6	14/-	21/-	42/-	84/- per doz.

Sole Agents—OSCAR MOENICH & CO., 8 Coleman Street, LONDON, E.C.

DR. BOW'S LINIMENT.



157,810

Of late a spurious article has been offered for sale, put up in imitation of the genuine one, even to copying the Pamphlet, Wrapper, and Labels. To protect the public from, and facilitate proceedings against, such frauds, the Proprietor has registered the Trade Mark here shown, a reduced copy of which will be found on the outside label on every bottle put up after this date. As a further security, the name "DR. BOW'S LINIMENT" (also a trade mark) appears in the Government Stamp.

BARCLAY & SONS, LIMITED, LONDON
RAIMES, CLARK & CO., EDINBURGH & YORK } For the Proprietor,
December 1*st*, 1891.

PRIZE MEDAL,
International
Health Exhibition,
1884.

THE NEW PERMANENT

ENGRAVED WINDOW TABLETS

AWARD OF MERIT
International
Sanitary Exhibition,
1881.

IN RUBY, BLUE, AMBER, AND OPAL GLASS.

Send particulars of size, subject matter, and colour, when price for one Tablet and upwards will be sent.
For Proprietary Articles, 100 8×6 Ruby Tablets, £3 15s. 0d.

J. R. CORSAN, THE LONDON SAND-BLAST WORKS, 80 GRAY'S INN ROAD, W.C.

TO PREVENT FRAUD, DEMAND BUSINESS CARD FROM TRAVELLERS.

EAU DE COLOGNE

OF THE MOST ANCIENT DISTILLER,

JOHANN MARIA FARINA,

Opposite the Julichs Place, COLOGNE,

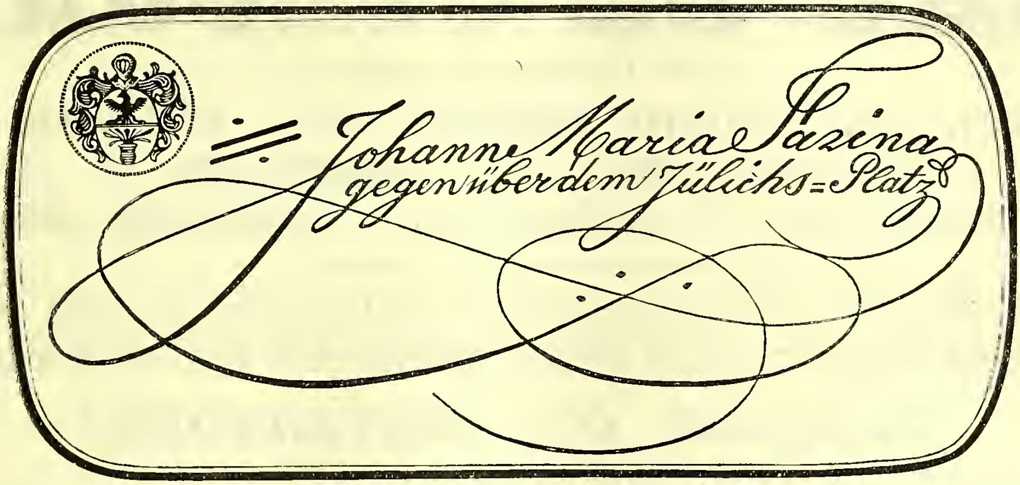
ESTABLISHED A.D. 1709.

PRIZE MEDALS:—LONDON, 1851 AND 1862; OPORTO, 1865; PARIS, 1867; VIENNA, 1873.

By appointment, Sole Purveyor to Her Most Gracious Majesty Victoria, Queen of Great Britain & Ireland; Their Royal Highnesses the Prince and Princess of Wales; Albert II., King of Saxony; Their Majesties, William II., German Emperor and King of Prussia; Alexander II., Emperor of Russia; Francis Joseph, Emperor of Austria; Lewis, King of Portugal.

In consequence of increasing inquiries from the Colonies for my Eau de Cologne, the only genuine, I beg to submit my Price Current.

At the same time I beg to call special attention to the following facsimile of my Trade Mark, for the protection of which I have instituted thirteen suits in the High Court of Chancery, all of which have been decided in my favour.



Johann Maria Farina
gegenüber dem Jülichs=Platz

All similar Labels being more or less imitations of the same, I shall proceed as before against all persons selling or exposing for sale any such imitations.

I only prepare one quality of Eau de Cologne. This quality never varies in the slightest degree, and there has not been the smallest change in the manufacture since the year 1709, when it was invented by my ancestor.

Orders equal to at least 12 dozen short bottles will be promptly executed at 13*s.* 6*d.* per dozen, against my bill drawn at three months from the date of invoice, delivered free on board the export ship, at Rotterdam Antwerp, Hamburg, or Bremen, no charge being made for the case and packing, but insurance charged extra 7½ per cent. discount is allowed for orders equal to at least 100 dozen, but on no smaller quantities.

I may add that, as I do not draw on the Colonies, all Orders must be accompanied by a credit on some London House, or permission to draw on same at three months.

The Goods can also be shipped in transit through London at a very small additional expense, full particulars of which may be obtained of my Sole Agents for Great Britain and Ireland:—

MESSRS. J. & R. McCRACKEN,

No. 38 Queen Street, Cannon Street, LONDON, E.C.

The following are the sizes of my bottles:—

No. 1	Long Green Flasks	12 bottles	to one dozen.
„ 2	Short White Bottles	12 „	
„ 3	Double ditto	6 „	
„ 4	Wickered Bottles (small)	8 „	
„ 5	ditto (medium)	4 „	
„ 6	ditto (large)	2 „	

JOHANN MARIA FARINA,
OPPOSITE THE JULICHS PLACE.

Cologne: *January*, 1892.

NOTICE!!

THE FIRM of MARIA CLEMENTINE MARTIN,

NUN

Have been Awarded **PRIZE MEDALS** for their Celebrated

EAU DE COLOGNE

AT THE FOLLOWING EXHIBITIONS, VIZ:—

LONDON, 1851. RHENISH PROVINCES, 1852. NEW YORK, 1853.
PARIS, 1855. LONDON, 1862.
VIENNA, 1873. SYDNEY, 1879. MELBOURNE, 1880.

Facsimiles of Prize Medals Awarded at London Exhibitions, 1851 & 1862, appear on Label of each Bottle. Without such, None are Genuine.

BEWARE OF IMITATIONS!!

EAU DE COLOGNE of the **"NUN"** (so-called), manufactured by any firm other than the above, is spurious, and an infringement of registered proprietary rights.

PRICE LIST.

	Duty Paid, Net.	In Bond.		Duty Paid, Net.	In Bond
No. 1.—Half Shorts	8/6	5/6	No. 4.—Long Green Flasks	16/-	11/-
No. 2.—Shorts	16/-	11/-	No. 5.—Wickered Bottles (Small)	26/6	19/3
No. 3.—Shorts (finely Wickered)	21/3	16/6	No. 6.—Wickered Bottles (Medium)	53/-	38/6

No. 7.—Wickered Bottles (Large)............... 106/- duty paid, net; 77/- in bond.

Small Cases assorted to order (of not less than £3 value in bond) delivered free freight, less 7½ per cent. discount.

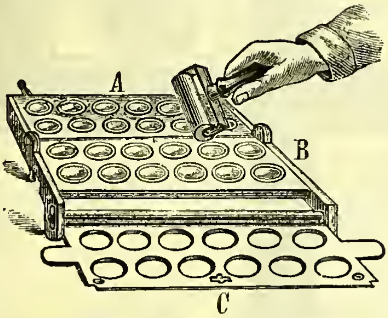
All Sizes can be obtained through any Wholesale House, or direct from the Sole Agents for Great Britain and Ireland,

C. E. MASON & CO.,

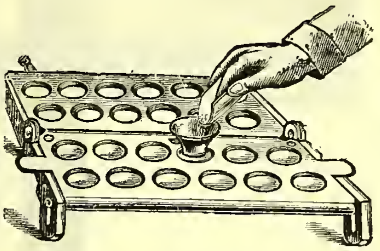
2 BEECH STREET, LONDON, E.C.

CACHETS

AND CLOSING APPARATUS (MORSTADT).



The Apparatus will close one dozen Cachets at once, of six different sizes, in an extremely simple, quick, and neat manner, without any adjustment of the apparatus to suit the different sizes. It prevents the powder from getting between the edges of the Cachets, and ensures their being firmly and accurately closed by simply passing the damping roller over all the lids of the Cachets, closing the apparatus, and pushing out the twelve closed Cachets.



Net Prices of Apparatus Complete, including Case:—				Nickel.	Zinc.
A,	closing 12 Cachets	each of	No. 000, 0, 0½, 1, 1½, 2... ...	30/-	20/-
,,	,, 12	,, ,,	without 000	27/6	18/6
B,	,, 12	,, ,,	No. 0, 0½	16/-	12/-
C,	,, 12	,, ,,	No. 1, 1½, 2, 000	18/-	13/-
,,	,, 12	,, ,,	without 000	16/-	12/-

Complete, with Damping Roller, Funnels, Thimbles, &c.

No.	CACHETS	Per 1000
000	holding 1½ grains of Quinine ...	5/-
0	,, 3 to 4½ ,, ,, ...	5/-
0½	,, 6 ,, 7½ ,, ,, ...	5/-
1	,, 9 ,, 10½ ,, ,, ...	5/-
1½	,, 10½ ,, 15 ,, ,, ...	6/-
2	,, 15 ,, 18½ ,, ,, ...	7/6

Embossing Cachets with name, 6*d. per* 1,000 *extra. Die for same*, 2/6.

PALMA CHRISTI

(Dr. STANDKE).

Is a high-class quality Castor Oil treated in a special manner so that it is entirely changed both in appearance and taste. It is more like a syrup than an oil, and is readily taken by children and other persons to whom the ordinary oil is so repugnant. Palma Christi is not Tasteless but eminently Tasty. It possesses the full cathartic properties of ordinary Castor Oil. Its objectionable taste is entirely removed by the method of treatment, and the addition of innocuous aromatic ingredients is so minute that the purity of the oil is in no way affected. Experts here, who had the oil presented to them, entirely failed to recognise it as Castor Oil.

The British Medical Journal, May 21st, 1892, says:—"There can be no doubt that the manufacturers of the castor oil have succeeded in not only extracting from the oil its disagreeable flavour, but also in obtaining a product which, judging from its taste, it would be impossible to say is castor oil. It is a transparent, colourless liquid, very much like glycerine in appearance, with an agreeable odour of cinnamon and pleasant aromatic taste."

The Medical Press and Circular, May 25th, 1892, says:—"This preparation of castor oil is the result of a special process which entirely obviates the objectionable qualities of the crude oil without impairing in the slightest degree its cathartic properties. So much is this the case, that were it not for the label one would have some difficulty in identifying the nature of the sample. In appearance it is bright and clear, and in fact it is undistinguishable by the eye from ordinary castor oil It will, in future, be inexcusable to subject patients to the nausea inseparable from the ingestion of the crude oil, the only drawback to the use of which has now been overcome."

In 1-lb. Bottles, 2s. 4d. per lb.; in Winchesters, 2s. 2d. lb.

With every bulk order a supply of nicely lithographed labels, without name, are sent to enable Chemists to effectively and inexpensively re-bottle for Retail sale

---

CUSHMAN'S PATENT MENTHOL INHALER

This is the most effective Pocket Inhaler in existence, and is recommended by Mr. Lennox Browne, F.R.C.S. Edin., for Colds, Coughs, Sore Throats, and all Bronchial affections.

It is neat and compact; most durable and cleanly, not liable to get out of order, and does not require renewing; no liquid to drop or spill, and can be carried on the person convenient for use at any time. Its medicinal virtues remain as long as the menthol is retained in the Inhaler. Used very successfully during the past two years as a Specific against the Influenza Epidemic.

Retail at 1s. 6d.; Trade 15s. per dozen.

THOMAS CHRISTY & CO., 25 LIME STREET, LONDON, E.C.

HOW TO ENJOY YOUR DINNER

It is acknowledged by the Trade that

THE "FLY CEMETERY"

Is the most saleable Fly Paper ever introduced. It is non-poisonous, and the enormous annual increase in the sale of it is positive proof of its popularity. Many Chemists sold more "Fly Cemeteries" last year than they ever did in their lives of all the other fly papers put together.

Samples, Testimonials, and Price on application to

TUNBRIDGE & WRIGHT, READING.

THE WANT OF THE DAY!

NO MORE SOFT LINEN WHEN STARCHED.

Used in the Royal Laundries.

Should be used in Every House.

The Greatest Boon ever offered to the Laundress for imparting an IVORY-FINISH to Starched Linen, Laces, &c. It does not stick to spider-web-like materials.

CRITCHLEY'S STARCH GLOSS

REGISTERED No. 40,376.

Once Tried, Always Wanted.

Makes Old Linen like New.

From the Chief Laundress to H.R.H. the Prince of Wales:—West Newton, near Lynn, Norfolk, Aug. 29, 1879. Sir,—Having tried your "Starch Gloss," I certainly think it a great improvement—far superior to any I have tried. Yours truly,
To Mr. Critchley. E. ELDER.

Sold by Chemists and Druggists, Grocers, Oilmen, &c., in Packets at 1d., 3d., 6d., and 1s. each.

PREPARED ONLY BY

T. CRITCHLEY, CHEMIST AND WHOLESALE DRUGGIST, **BLACKBURN.**

LONDON DEPOT—2 BEECH STREET, E.C.

AS A POLISH THE CLEANEST, BRIGHTEST, AND BEST.

PYN-KA

THE POLISHING TABLET (Unsurpassed). AWARDED GOLD MEDAL.

Cleans with a Brilliant Polish Brass, Copper, Silver, Gold, White and other Metal, Electroware, Glassware, and other domestic articles. For Restaurants, Hotels, Bars, and Bicyclists.

TESTIMONIAL FROM A LADY.—"Your 'PYN-KA' Sample is the best I have tried, and we shall use no other cleaning preparation in our house. It will, I am convinced, supersede all other Polishing Pastes."

For Wholesale Terms apply to the Sole Vendors— THE PYN-KA SYNDICATE, LIMITED, 41 LORD ST., LIVERPOOL.

AGENTS APPOINTED

FOR SALE OF

DR. ALLINSON'S NATURAL FOOD.

The MOST DELICIOUS and LEAST COSTLY, for

BABIES, CHILDREN (any age), INVALIDS, AND ADULTS.

The INVENTION of

DR. T. R. ALLINSON, L.R.C.P.,

The Eminent Hygienic Physician, and Authority on Health and Diet, and each Packet bears his Autograph.

This FOOD is not highly spiced, or chemically prepared, but

A PURE and NATURAL FOOD.

PACKETS, 1d., 3d., 6d., 1s. EACH.

Write for Samples and Prices to [1]

THE NATURAL FOOD COMPANY,

PETER TYRER, Proprietor,

South Street, Bermondsey, LONDON, S.E.

Cash Price—20s. for 12½ Gallons.

CASKS FREE.

School of Cookery, Crystal Palace, S.E.

January, 1883.

Mr. PETER TYRER,

Sir,—I have been using the "Borough" Ketchup, and am very pleased with it. Its flavour is excellent, both for all kinds of Savoury dishes and Soups; and I most certainly should advise every cook and housekeeper to use it, FOR I HAVE NEVER YET MET ITS EQUAL.

[2] MARIAN SMITHARD,

Lecturess on Cookery.

IT IS A FACT THAT THOSE WHO BUY FOR CASH

DO NOT THROW MONEY AWAY

BUT WRITE FOR A FREE SAMPLE OF

Tyrer's "BOROUGH" Ketchup

SILVER MEDAL LONDON.

SENT FREE TO ANY ADDRESS

MANUFACTORY—70 Long Lane, Borough, LONDON, S.E. CHIEF SCOTCH AGENCY—West Nile St., GLASGOW.

PETER TYRER'S SAUCES

WORCESTER, READING, HARVIE, YORKSHIRE, AND "BOROUGH" KETCHUP,

SILVER MEDAL.

	Per gross.	Extra Quality.
1*d.* Sample Bottles, dozen parcels	5/3	6/3
" " ½-gross boxes	5/9	6/9
1*d.* Giant " dozen parcels	6/6	8/6
" " ½-gross boxes	7/-	9/-

	Per gross.	Extra Quality.
¼ Bottles, flat or round, reputed ½ pints	16/-	26/-
½ " " " pints	26/-	38/-
1 Pint Imperial, round stoppered bottles	52/-	62/-
12½-Gallon Casks (*casks free*)	each 20/-	32/-

ROYAL CAFE SAUCE, a Rich Fruity & Exquisite Flavour.

Square Glass Stoppered Bottles, containing nearly ½ pint Imperial, 42/- per gross. Sample Bottles at 7/- per Gross.

CAPSULED "McK. & R." PILLS.

McKesson & Robbins : Originated 1870 : New York.

WHY SHOULD THE "McK. & R." PILLS BE PRESCRIBED?

1. Because they are prepared from materials of the highest quality only.
2. Because they are made according to the B.P. or other Standard Authorities, and therefore all the combinations are well tried and of recognised value.
3. Because they are taken pleasantly—being tasteless—and readily, being ovoid in form.
4. Because they are not subjected at any stage of preparation to the injurious action of heat.
5. Because the coating of *pure transparent gelatine* preserves the contents from oxidation.
6. Because they are always soluble, and the contents soft and quickly disintegrated.

LIST OF PRINCIPAL CAPSULED PILLS.

Aloes, all the B.P. combinations	5 gr.
Aloes, Dilute (Dr. Hall Dinner Pill)	4 gr.
Aloes Barb. Saponis Pulv. Pulv. Ext. Glycyrrh. Theriaca, āā	1 gr.
Aloes and Nux Vomica—	
Aloes Soc.	1½ gr.
Ext. Nucis Vom.	½ gr.
Aloin	$\frac{1}{10}$, $\frac{1}{4}$, $\frac{1}{2}$, 1 gr.
Aloin, various combinations.	
Anti-Dyspepsia (Fothergill)—	
Strychninæ	$\frac{1}{20}$ gr.
Pulv. Piper Nig.	1½ gr.
Pulv. Ipecac.	2-3 gr.
Ext. Gent.	1 gr.
Arsenious Acid	1-20, 1-50 gr.
Asafœtida, U.S. and B.P.	5 gr.
Atropine	1-100, 1-300 gr.
Blue Pill, B.P.	1, 2, 3, 5 gr.
Blue Pill, with Colocynth and Hyoscyam.	5 gr.
Calcium Sulphide	1-10, 1-4, 1-2, 1 gr.
Calomel, Colocyn., and Hyosc.	5 gr.
Calomel Co., B.P.	5 gr.
Camphor and Hyoscyam.	2 gr.
Camphoræ. Ext. Hyoscy., āā	1 gr.
Cannabis Indica	1-4, 1-2 gr.
Cascara Sagrada	3 gr.
Cathartic Comp., U.S.P.	
Ext. Jalap	1 gr.
Ext. Coloc. Co.	1 1-3 gr.
Hyd. Subchlor.	1 gr.
Gambog.	1-4 gr.
N.B.—The ready solubility of the "McK. & R." Pills is readily proved by taking a dose of these.	
Colocynth Comp., B.P.	4, 5 gr.
Colocynth, other combinations.	
Copaiba Compound—	
Cubebæ Pulv.	2 gr.
Ferri Sulph. Exsic.	1-2 gr.
Mass. Copaib.	1 gr.
Tereb. Venet.	1 1-2 gr.
Corrosive Sublimate	1-30, 1-20, 1-10 gr.
Croton Oil	1-2 gr.
Diuretic—	
Ext. Buchu, Potass. Nitrat.	1 gr.
Scillæ Pulv.	1-2 gr.
Emmenagogue—	
Ferr. Sulph. Exsic.	1 1-2 gr.
Thus, American	1 1-2 gr.
Aloes Socot.	1-2 gr.
Ergotin	3 gr.
N.B.—Each Pill = 30 gr. ergot or 30 ms. fl. extract. This form is more reliable and uniform in effect and more agreeable than the liquid preparations.	
Euonymin	2, 3 gr.
Iodoform and Iodoform with Iron	1 gr.
Ipecac.	1-4, 5 gr.
Ipecac. Co.	5 gr.
Ipecac. and Squill, B.P	5 gr.
Iron Pill, B.P. Add.	3, 5 gr.
Iron Arseniate	1-8 gr.
Iron reduced by Hydrogen (Quevenne)	1, 4 gr.
Iron and Quinine Citrate	2 gr.
Laxative, Vegetable—	
Res. Podoph. Ext. Hyoscy. Ext. Tarax, āā	1-4 gr.
Ext. Coloc. Co.	1 gr.
Jalapæ Res. Leptand. āā Ol. Menth. Pip.	1-2 gr.
Mercury, Biniodide	1-16 gr.
Mercury, Proto-iodide	1-20, 1-16, 1-8, 1-4 gr.
N.B.—Made from the absolutely pure *yellow* impalpable powder, free from mercury and from biniodide. So-called "green" proto-iodide contains uncombined mercury.	
Mercury with Chalk	1 gr.
Morphine Muriate	1-8, 1-4 gr.
Nitro-Glycerine	1-200, 1-100, 1-50 gr.
Opium	1 gr.
Opium and Camphor	1 gr.
Opii Pulv.	1 gr.
Camphoræ	2 gr.
Pepsin, Pure	1 gr.
Phosphorus	1-100, 1-50, 1-30 gr.
N.B.—In no kind of Pill are the advantages of the "McK. & R." method better exemplified or more in request. No other brand of Phosphorus Pills is equally reliable for the administration of the unoxidised medicament.	
Phosphorus and Iron—	
Phosphor. Pur.	1-50 gr.
Ferr. Redact.	2 gr.
Phosphorus, Iron, and Quinine—	
Phosphor. Pur.	1-100 gr.
Ferri Carb.	1 gr.
Quininæ Sulph.	1 gr.
Phosphorus and Nux Vomica—	
Phosphor. Pur.	1-50 gr.
Ext. Nucis Vom.	1-4 gr.
Phosphorus and Quinine—	
Phosphor. Pur.	1-50 gr.
Quininæ Sulph.	1 gr.
Phosphorus and Valerianate of Zinc—	
Phosphor. Pur.	1-50 gr.
Zinci Valer.	1 gr.
Picrotoxin	1-80 gr.
Podophyllin	1-8, 1-4, 1-2 gr.
Quinine, Bisulphate	1-4, 1-2, 1, 2, 3, 4, 5 gr.
Quinine, Sulphate	1-4, 1-2, 1, 2, 3, 4, 5 gr.
Quinine Co. (Anti-Malarial). Largely prescribed in America with excellent results.	
Rhubarb Comp., B.P.	5 gr.
Rhubarb with Blue Pill	5 gr.
Salicylic Acid	2, 5 gr.
Soap Comp., B.P.	5 gr.
Squill Comp., B.P.	5 gr.
Strophanthus	1-20, 1-4 gr.
Strychnine	1-50 gr.
Tonic Laxative (Fothergill)—	
Quininæ Sulph.	2-3 gr.
Strychn.	1-30 gr.
Ferri Redact. Ext. Bellad., āā	1-4 gr.
Valerianates, Iron, Quinine, and Zinc.	
Warburg's Tincture and the same without Aloes. Each Pill = 1 fl. drm. of the Tincture.	
Zinc Phosphide	1-4, 1-2 gr.
Zinc Valerianate	1 gr.

Special Combinations of 3,000 or more Pills made and Capsuled to order for Hospitals, &c., at Special Quotations.

London Agency:—Messrs. S. Maw, Son & Thompson, 7 to 12 Aldersgate Street, E.C.

ALSO SUPPLIED BY

Messrs. BURROUGHS, WELLCOME & CO., Snow Hill Buildings, London, E.C.;

Messrs. GRIMWADE, RIDLEY & CO., 7 Union Court, Old Broad Street, London, E.C.

"A very ingenious and marked progress in elegant and efficient Pharmacy."

—*British Medical Journal.*

Similar opinions respecting "Palatinoids" and "Bi-palatinoids" have been received from the Medical Press, the Profession, and the Trade.

AN IDEAL MEDICATION—

"Palatinoids" fulfil all the requirements for an ideal form of medication. They are elegant in appearance, accurately dosed, and perfectly free from excipient. The drug is protected from deleterious atmospheric influences, and any nauseous odour or taste it may possess is effectually disguised. Children and people who cannot possibly swallow pills take "Palatinoids" with the greatest of ease.

PURE FERROUS SALTS—

"Bi-palatinoids" keep the Salts necessary for the formation of pure Ferrous Carbonate, Phosphate, Arseniate, or Hypophosphite apart until the stomach is reached, when the desired salt is formed perfectly fresh and unoxidised. *The Chemist and Druggist* commenting upon the Ferrous Carbonate "Bi-palatinoid" considers it "A perfect Blaud's pill."

'PALATINOID' & 'BI-PALATINOID'

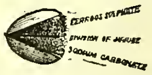
Before immersion in water.

"PALATINOID"

OPENED.

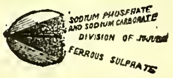
"BI-PALATINOID"

(FERROUS CARBONATE)



"BI-PALATINOID"

(FERROUS PHOSPHATE)


SODIUM PHOSPHATE AND SODIUM CARBONATE
DIVISION OF
FERROUS SULPHATE

After three minutes' immersion in water at normal temperature of stomach.

OPPENHEIMER, SON & CO., LTD., 14 WORSHIP STREET, E.C.

BEECHAM'S TOOTH PASTE.

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THE TONICS—Quinine and Strychnine;

AND THE VITALISING CONSTITUENT—Phosphorus: the whole combined in the form of a Syrup with a **SLIGHTLY ALKALINE REACTION.**

IT DIFFERS IN ITS EFFECTS FROM ALL ANALOGOUS PREPARATIONS, and it possesses the important properties of being pleasant to the taste, easily borne by the stomach, and harmless under prolonged use.

IT HAS GAINED A WIDE REPUTATION, particularly in the treatment of Pulmonary Tuberculosis Chronic Bronchitis, and other affections of the respiratory organs. It has also been employed with much success in various nervous and debilitating diseases.

ITS CURATIVE POWER is largely attributable to its stimulant, tonic, and nutritive properties, by means of which the energy of the system is recruited.

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The success of Fellows' Syrup of Hypophosphites has tempted certain persons to offer imitations of it for sale. Mr. Fellows, who has examined samples of several of these, FINDS THAT NO TWO OF THEM ARE IDENTICAL, and that all of them differ from the original in composition, in freedom from acid reaction, in susceptibility to the effects of oxygen when exposed to light or heat, IN THE PROPERTY OF RETAINING THE STRYCHNINE IN SOLUTION, and in the medicinal effects.

As these cheap and inefficient substitutes are frequently dispensed instead of the genuine preparation, physicians are earnestly requested, when prescribing the Syrup, to write "Syr. Hypophos. FELLOWS."

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B., W. & Co. Hypodermic "Tabloid" Pocket Case, fitted and filled complete (12 tubes of 12 or 20 "Tabloids" ea.), 15*s*.

HYPODERMIC "TABLOIDS."

It is now placed beyond all possible dispute that even the best and most carefully prepared solutions intended for Hypodermic injection generally lose their therapeutic value, or, becoming metamorphosed, cause grave inconvenience and physiological disturbances. These disadvantages are entirely avoided by the adoption of the Hypodermic "Tabloids," which are always ready, easily soluble, and possess the fullest physiological activity.

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Apomorphia Hydrochlorate	1/10 gr.
Apomorphia Hydrochlorate	1/15 gr.
Atropia Sulphate	1/150, 1/100 and 1/60 gr.
*Caffeine Sodio-Salicylate	½ gr.
Cocaine Hydrochlor.	1/6, ½,* and ¼ gr.*
Codeine Phosphate	1/4 gr.
Colchicin	1/100 gr.
*Cornutine Hydrochloride	1/60 gr.
*Curare	1/12 gr.
Digitalin	1/100 gr.
Ergotinin Citrate	1/200 and 1/100 gr.
Eserine Salicylate	1/100 gr.
Homatropin Hydrochlorate	1/250 gr.
Hydrarg. Perchlor.	1/60 and 1/30 gr.
Hyoscine Hydrobrom.	1/200 and 1/75 gr.*
*Hyoscyamin Sulphate	1/80 and 1/20 gr.
Morphia Bi-Meconate	1/8, 1/6, 1/4 and 1/3 gr.
Morphia Hydrochlor.	¼ gr.
Morphia Sulphate	1/12, 1/8, 1/6, 1/4, 1/3, and 1/2 gr.*
Morphia Sulphate Atropia Sulphate	1/12 gr. 1/250 gr.
Morphia Sulphate Atropia Sulphate	1/8 gr. 1/200 gr.
Morphia Sulphate Atropia Sulphate	1/6 gr. 1/180 gr.
Morphia Sulphate Atropia Sulphate	1/4 gr. 1/150 gr.
Morphia Sulphate Atropia Sulphate	1/3 gr. 1/120 gr.
* Morphia Sulphate Atropia Sulphate	1/2 gr. 1/100 gr.
Pilocarpine Hydrochlorate	1/10, 1/6, 1/3,* and 1/2 gr.*
*Quinine Hydrobrom.	1/2 gr.
*Sclerotinic Acid	½ and 1 gr.
*Sparteine Sulphate	½ gr.
Strychnia Sulphate	1/150, 1/100, and 1/60 gr.
Strophanthin	1/500 gr.

Put up in tubes, each containing 20 "Tabloids," with the exception of those marked with *an asterisk*, which contain 12 "Tabloids," at 12/ per dozen Tubes.

N.B.—These "Tabloids" may be safely employed for ophthalmic purposes, or may be given by the mouth.

BEEF AND IRON WINE (B., W. & CO.).

Highly concentrated strength-giving Tonic Food. Each tablespoonful represents the tonic and stimulant value of one ounce of GOOD FRESH BEEF with one grain of iron in a pure MEDICINAL WINE previously freed from tannin.

The *Lancet* says: "This is a really valuable preparation, and, as far as we know, a novelty. It contains Beef Juice and Citrate of Iron in solution in Wine, and is therefore a very powerful and rapidly acting tonic. Children, as well as adults, take it easily, and, as its taste is by no means unpleasant, it can hardly fail to attain great popularity."

The *British Medical Journal* says: "It is a pleasant tonic and mild stimulant. It will be found most useful in cases where the use of a blood tonic is indicated. The ordinary dose for an adult is a tablespoonful, which should be taken in a little water between meals. Children also may take it in similar doses according to age."

Beef and Iron Wine (B., W. & Co.) is supplied to the Trade in ½-lb. and 1-lb. bottles, at 22/- and 42/- per doz. Retail at 2/6 and 4/6 per bottle.

MALTO-RICINE.

A solution of the finest castor oil in Kepler Malt Extract: represents 50 per cent. of castor oil. The nauseous and very objectionable taste of the castor oil is well disguised, and even the laxative properties of the oil enhanced in this combination, to which the most fastidious patients, as in the case of women and children, are not found to object.

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The flavour of the ESSENCE OF MALT is delicious. It is admirable as a table beverage when diluted with aërated water, and as an addition to milk for infant and invalid dieting; for it sweetens it and facilitates its prompt and perfect digestion. The Essence may be taken in coffee, gruel, aërated or plain water, wine, or mixed with any farinaceous pudding. It increases the value of all farinaceous food, and prevents the starch in such food, and large clots of curd in milk diet, overtaxing the power of the digestive functions. Supplied in botts at 1*s*. 6*d*. each.

HAZELINE.

A colourless distilled product, containing the volatile active principles of the fresh green twigs and leaves of the Witch Hazel.

Witch Hazel Plant.

PROPERTIES.—*Hæmostatic, Anodyne, and Astringent.*

Prescribed in cases of hæmorrhage from the nose, lungs, womb, rectum, &c. Is a valuable agent in the treatment of bruises, sprains, inflammation, peritonitis, piles, fistula, anal fissures, ulcers, varicose veins, eczematous surfaces, tonsillitis, pharyngitis, nasal and post-nasal catarrh, stomatitis, leucorrhœa, nasal polypi, &c.

DIRECTIONS.—In catarrh or cold in the head, may be sniffed up the nostrils with an equal part of tepid water. *Dose* for irritated or inflamed throat and lungs half to one teaspoonful occasionally.

Supplied to the Trade in ½-lb. and 1-lb. bottles, at 14*s*. and 42*s*. per dozen.

HAZELINE CREAM

Superior to Cold Cream.

Is an elegant preparation of the colour and consistence of cream, and possesses the well-known anodyne and astringent properties of Hazeline with the emollient and protective action of Lanoline. This preparation is considered by many medical practitioners to be superior to the ordinary Cold Cream of the pharmacies as an application for *roughness of the skin, chapping, irritation.*

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IMPROVED HAZELINE SUPPOSITORIES.

Each suppository contains in an enclosed chamber an appreciable quantity of free Hazeline, and is made from a Lanoline combination, which is not liable to become rancid. In boxes of 12 at 22/- per doz. boxes.

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Each suppository contains Hazeline, Ext. Hamamelidis, and Oxide of Zinc in approved proportions, combined with a Lanolin basis. The use of both the simple and compound Hazeline Suppositories is too well understood to require repetition. They are put up in boxes of 12 suppositories each, at 22*s*. per dozen.

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A pure neutral solution of Peroxide of Iron in the colloid form. Does not injure the teeth nor constipate. It is a preparation of invariable strength and purity, obtained by a process of Dialysation, the Iron being separated from its combinations by endosmosis, according to the law of diffusion of liquids. It affords, therefore, the very best mode of administering Iron in cases where the use of this remedy is indicated.

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"VASELINE" SOAP, unscented, each tablet in card case; boxes of 3 dozen tablets.
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"VASELINE" TAR SOAP, 10 per cent. of tar, card boxes of 6 tablets.

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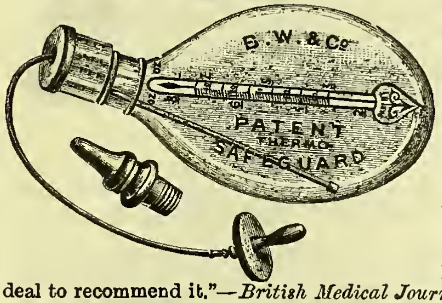

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Admirably adapted for use with the Thermo-Safeguard Feeding Bottle. Supplied to the Trade in boxes containing 12 Tubes at 14/- per dozen.

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May be had from all Chemists and Druggists and Stationers.

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HIGHEST AWARD—ADELAIDE, 1887, and MELBOURNE, 1888.

The Lancet describes it as "Mr. Benger's admirable preparation."

The London Medical Record says: "It is retained when all other foods are rejected. It is invaluable.

The British Medical Journal says: "Benger's Food has by its excellence established a reputation of its own."

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Wholesale of all Wholesale Houses.

THE CHEMIST AND DRUGGIST

ESTABLISHED 1859 AS A MONTHLY. SINCE MARCH, 1886, A WEEKLY JOURNAL.

PRINCIPAL OFFICE, 42 CANNON STREET, LONDON, E.C.

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The Pharmaceutical Society of Ireland.
South African Pharmaceutical Association.
The Pharmaceutical Association of New Zealand.
The Central Association of New Zealand.
Otago Pharmaceutical Association.
The Pharmaceutical Society of Queensland.
The Pharmaceutical Society of South Australia.
Tasmanian Pharmaceutical Society.

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Summary.

THE drug markets are fairly active, and the demand for disinfectants especially keeps particularly brisk. Opium and its preparations also are in a condition of mild excitement.

SOME unqualified patent-medicine dealers have met at Manchester and formed a Patent Medicine Defence Association to defend their rights, "countenanced from time immemorial," as they quaintly express themselves.

IN our correspondence will be found letters from Mr. J. C. Umney, of Hull, Mr. Linford, and Mr. Brown, of Dover, carrying forward the discussion on the assay of tincture of opium raised in our last issue by Messrs. Farr and Wright.

WE also print a letter concerning a cream of tartar transaction, which opens the interesting question whether a railway company ought to take the weight declared by the sender of goods for granted, or check it before the merchandise is despatched.

MR. ERNEST HART wishes it to be known that the credit of initiating the poisonous proprietary medicines prosecutions belongs to him and his Parliamentary Committee of the British Medical Association, and not to the Pharmaceutical Council.

WE print the circular concerning poisonous proprietary preparations issued last week by the Pharmaceutical Society, and also a rejoinder to it published by the Association of Owners of Proprietary Medicines, in which the latter practically challenge the Council's interpretation of the law.

THE Council of the Irish Pharmaceutical Society obtained judgment for penalties, at Bangor (co. Down) and at Dublin, against chemists and druggists who had compounded medical prescriptions. In one case at Bangor they were defeated, the magistrates considering that their evidence was not sufficient.

THE report of the twenty-ninth meeting of the British Pharmaceutical Conference at Edinburgh occupies a considerable space in this issue. It was a most successful meeting, and the participants seem to have thoroughly enjoyed it. Mr. Stanford (the President's) address was based on the question whether pharmacy was keeping pace with other arts and industries in progress and development. He gave an interesting survey of many allied fields of labour in dealing with this problem, but did not come to a definite decision. The Conference has decided not in future to follow the British Association. Next year's meeting is fixed for Nottingham, with Mr. Octavius Corder, of Norwich, as President.

AT THE COUNTER.

"BULLROCKS AND HONNEY" is the only etymological novelty in a little parcel sent to us from Hendon.

"INCEK-POWDER," "Hogs iron of zinc," and "Coff mixture for baby 2 yers old he as ouping coff" are the pick of some specimens from Wolverhampton.

A LEOMINSTER correspondent sends us an order for "Three Peneth Cross off Suplement," which came to his shop.

A MADRAS subscriber, who remarks on the notable postal feat of delivering THE CHEMIST AND DRUGGIST of June 25 in Madras on July 11, sends us two orders received from army surgeons, which show that they do not all keep up to the level of their examinations. One M.D. writes: "Please send me Salacitate of Soda ʒj."; another says: "Please make up subscription given to bearer."

THIS WAS NOT A PRESIDENTIAL PUN.—"That's what I call a failing test," said a journalistic colleague of THE CHEMIST AND DRUGGIST man, when Mr. Allen and Mr. Naylor succeeded in not getting the bromine caffeine test.

English News.

Boots (Limited).

The first general or statutory meeting of the shareholders in Boots (Limited), manufacturing and retail chemists, of Nottingham, Sheffield, Derby, Lincoln, and other towns, was held at the George Hotel, Nottingham, on August 18. Mr. J. Duckworth (Mayor of Rochdale) was in the chair, and in a lengthy speech narrated the circumstances under which the business had been converted into the present company. The old company comprised eighteen members, and the shares were 100*l.* each. It had been considered, however, wise to induce customers to invest in a concern where there would be a good return and every guarantee for the safety of the money. The shares were issued at 1*l.*, and already over 10,000 shares had been issued, mainly to customers. The shares were now worth 25*s.*, and were likely to be worth more before very long. An important feature of this company was that the trading would be carried on in some nine or ten towns. There were, he thought, twenty-four establishments already in some nine different towns, and they could not conceive of trade being bad in the whole of those towns at one period. In every town where the company thought fit to go, one high-class establishment would be fitted up second to none in the town, and branches would be started if thought desirable. Although the high-class drug-trade had been a kind of close preserve in the past, it was clear to the company and others that it would have to be done on different lines in the future. So long as the trade could be carried on honestly and on business-like principles, and to the evident good of the public, they (the directors) thought that they might be in it, and have a share of the trade as well as anyone else. The rest of the business was purely formal.

Fatal Accident at Godalming.

An inquest was held at Godalming, on August 16, upon the body of Herbert Dawson Norman, the son of Mr. Councillor Norman, of Godalming. It appears that the little boy (he was not quite five years of age) was sent on an errand on the previous morning, and while walking along the street paused a moment to see a lad, standing on a pair of steps, clean the windows at Mr. S. Edwards' drug-stores. Suddenly the lad overbalanced himself and fell to the ground with the steps, the latter knocking down Mr. Norman's little boy and causing severe injury to the child's spinal cord. The poor little fellow was carried into Mr. Edwards' shop and medical aid summoned promptly, but the child expired shortly after. A verdict of accidental death was returned, and the jury expressed their sympathy with the child's parents.

Ernest Hart Claims the Glory.

Mr. Ernest Hart, as chairman of the Parliamentary Committee of the British Medical Association, seems to think his friends of the Pharmaceutical Council are a little too much monopolising the glory of the recent chlorodyne prosecution. He writes to the *Pall Mall Gazette* in reference to a statement which had been published in that paper on August 15, that "it is nowadays well known that care for the public safety, in so far as the sale of poisons by retail is concerned, devolves upon the Pharmaceutical Society of Great Britain," and, referring to the recent circular issued by the Society, complains that the Council does not state what is a fact — namely, that for a long series of years that Society has not put in force its power in respect to this class of poisons contained in medicines, and that the matter has been taken up now only at the urgent instance of the Parliamentary Bills Committee of the British Medical Association. That, as chairman of that committee, he submitted to the Treasury a list of patent medicines which were proved, by special analysis, which he instituted, to contain poisonous substances, but which were sold without the label "Poison." As the result of this action, the Treasury, having previously verified certain of the analyses, undertook a prosecution at the Bow Street Police Court, and obtained a conviction. Mr. Hart adds that it was he who subsequently requested the Treasury to call the attention of the Council of the Pharmaceutical Society to their statutory duty in this respect, and, further, communicated himself with the President of that Society. He expresses thanks to the Pharmaceutical Council for having "after many years of hesitation and delay," commenced to perform their statutory duty for the protection of the public; but he thinks it ought to be known that the present action is due to the initiation of his committee.

An Error in the "Corner for Students."

In last week's "Corner for Students" a rather important printer's error was allowed to pass. It occurred on line 20 of the second column of page 254. Mr. Moss was commenting on the importance of cultivating the sense of smell in detecting certain gases, and he is made to say, "It must be remembered, too, not to confound mineral gases or vapours with substances in the pure state." For "mineral" in this sentence "mixed" should be substituted.

"Immemorial Rights" in Infringing the Law.

At an influential meeting of grocers and patent-medicine vendors held at the Queen's Hotel, Manchester, on August 18—Mr. W. Green, of Bolton, presiding—the question of the so-called poisonous patent medicines was fully discussed, the meeting being entirely unanimous in the view that vendors should be supported in continuance of their business as countenanced from time immemorial. The organisation of the Patent Medicine Defence Association was completed, the officers being duly elected and a plan of procedure settled upon. Mr. W. J. Leggett, of Liverpool, was elected secretary.

The Chemist's Suicide at Hull.

The "chemist" Behrandt, whose suicide at Hull, when he was about to be arrested, we reported last week, was a German, and had been living in Southampton about six months as assistant with a firm in Oxford Street, Southampton. Before leaving that town he went to several persons he knew and asked them if they had watches to sell. It is alleged that he found six people in that position, and the value of the timekeepers they had to dispose of varied from 20*l.* to 3*l.* He is alleged to have represented that he knew of a captain who wanted to purchase a watch, and if he might show him this particular one, no doubt he would purchase it. The watches were duly handed over, as was also a valuable ring. Behrandt then left Southampton and went to London. From there he was traced to Grimsby, and from Grimsby to Hull.

The Gainsborough Poisoning Case.

At the inquest on the man Morley, who was apparently poisoned in a public-house at Gainsborough by strychnine, evidence as to the purchase of the poison for the man Morgan, who is under arrest, was given. George Bennett, a horsekeeper, said he was in the public-house when Morgan called him and asked him to get some poison to kill two dogs with. He went to Mr. Collitt's drug-shop, but was told he would have to get a witness. He got a man named Scott. Both signed the book. He paid 6*d.* for the poison, which he gave to Morgan. Mr. Wm. Collitt, chemist, said the last witness came to his shop about 7.30 o'clock on Monday night, and asked for some poison to destroy two dogs. He refused to supply it until Bennett got a witness to come known to both of them. Walter Scott, whom he knew, came in with Bennett, and witness gave him sufficient to destroy two dogs. Witness told him to cut some meat up fine, and sprinkle some of the powder upon it. He did not weigh it but guessed it. It was about ten grains of pure strychnine. It was wrapped in blue paper, with the word poison upon it. The sale was duly booked by witness. The mark had been made more distinct by witness. He did not often give as much poison as he had given them. By a Juror: How many human beings would that destroy? Witness: If they got it all, six. In answer to the Coroner, witness said they gave what they thought proper to destroy a dog, it was left to their own discretion. It was usual to guess at the quantity. The amount he would consider sufficient for a dog of the ordinary size was from ½ to 1 grain. There were 10 grains in the powder supplied. He gave more than was necessary because of the waste.

A Chemist Objects to Vaccination.

At Caistor Petty Sessions, Mr. Michael Hill Skuine, chemist, of Keelby, was summoned for disobeying a magistrate's order to have his child vaccinated. Defendant pleaded guilty, and a fine of 1*l.* and 7*s.* costs was imposed.

An Aversion to the County Analyst.

At the last meeting of the Evesham Rural Sanitary Authority the inspector, referring to a house at Badsey, occupied by Mr. Hunt, stated that he had asked Mr. Hunt to have a sample of the water taken in his (the inspector's) presence for analysis. Mr. Hunt, however, said that it had been analysed once, that the sample was taken in the presence of a creditable witness, and he declined going to any further expense. Mr. Hunt appeared before the Board, and said the water was analysed by Mr. Doeg, and the Chairman said that Mr. Doeg was not the authority for the Board. Mr. Hunt said he did not want to have the water analysed by any of the Board's men, as they would be sure to condemn it; but it was stated that only that day they had a case in which the analyst had passed a sample of water. Mr. Hunt remarked that Mr. Doeg's fee was one guinea, and the Chairman told him that he could have had it done by the Board for half that amount. Mr. Hunt then said that as he had to pay, he should think he could do as he liked, and the Chairman warned him of the expense it would entail if they had to take proceedings against him. He could, however, send the water to Mr. Doeg if he liked, but it must be taken in the presence of the inspector and sealed by him.

Cycling, Golf, and Cricket.

On August 18 seven members of the Cycling Club connected with the Midland Counties Chemists' Association wheeled to Coventry, and were entertained by Mr. W. F. Wyley at his mansion, "The Charterhouse," which is full of interesting reminiscences of the Carthusian Friars, whose abode it was in Mediæval times.—The Dick monthly medal, presented to the golf section of the Chemists' Athletic Club of Edinburgh, will be played for on September 2 and 3, on the Braids. Intending competitors are requested to send their names to Mr. J. Blake, of Leith, hon. sec. of the Athletic Club.—The return match between the elevens of Richardson & Co, Leicester, and Wyleys & Co., of Coventry, was played at Leicester on August 13. The Coventry team batted first, and were dismissed for sixty-five runs, Warner taking six wickets for nine runs. The Richardsonians played the Coventry bowling with confidence, and secured an easy victory by four wickets. A substantial repast followed. It is proposed to make the match an annual one.

Poisonous Proprietary Medicines.

It has been suggested to us that for purposes of reference in the future it is desirable that the circular issued last week by the Pharmaceutical Society should be preserved in this journal. It runs as follows:—

Pharmaceutical Society of Great Britain,
17 Bloomsbury Square, London, W.C.,
August 13, 1892.

IMPORTANT NOTICE TO PHARMACEUTICAL CHEMISTS AND CHEMISTS AND DRUGGISTS.

DEAR SIR,—I am instructed by the Council of this Society to inform you that the Public Prosecutor has called the attention of the Council to the decision given by Mr. Lushington, at the Bow Street Police Court, London, on April 30 last, in the case of Regina *v.* Davenport. The effect of that decision is that Proprietary Preperations containing poisons within the meaning of the Pharmacy Act, 1868, although bearing a medicine stamp, are not exempt from the restrictions and conditions, as to sale by retail, imposed by that Act.

The Council has, in consequence, instituted proceedings against several large shopkeepers (not registered as chemists and druggists) for keeping open shop for the sale by retail of poisonous proprietary preparations, which they have been in the habit of selling to the public in addition to other commodities. Penalties have been paid by these shopkeepers and undertakings given to discontinue the practice.

Having regard to the importance of this interpretation of the law as affecting the safety of the public, the Council deems it right to warn all pharmaceutical chemists and chemists and druggists that all proprietary preparations containing poisons in part 2 of Schedule A of the Act, whether bearing a medicine stamp or not, must be labelled "Poison," and the name and address of the seller be affixed thereto. In the sale by retail of proprietary preparations containing a poison within part 1 of the Schedule the further conditions imposed by Section 17 of the Pharmacy Act, 1868, must be complied with.

In the case of proprietary preparations, supposed to contain a scheduled poison not prepared by the retailer himself, it will be necessary for registered persons to protect themselves from incurring penalties by requiring a declaration from the wholesale houses who supply them to the effect that the preparations do or do not contain such poison; and if they contain a scheduled poison, whether such poison is included in part 1 or part 2 of the schedule.

I am, dear Sir, yours faithfully,
RICHARD BREMRIDGE.
(Secretary and Registrar.)

⁂ A list of poisons within the meaning of the Pharmacy Act, 1868 and the conditions under which they may be sold by retail, is printed on the other side for your guidance. [This corresponds with the list of poisons published in the Society's Calendar.]

FOR THE DEFENCE.

The following has been issued within the past few days:—

Association of Owners of Proprietary Medicines,
6 Great Winchester Street, Old Broad Street.
London, E.C., August, 1892.

Secretary, Walter Whitaker.

In consequence of various enquiries, the Association of Owners of Proprietary Medicines beg to intimate their opinion on the following points to be:—

1. That the late prosecution of Reg. *v.* Davenport settled nothing beyond the fact that a preparation of morphia and chloroform came within the clauses of the Pharmacy Act, 1868.
2. That the Association entirely disputes the assumption that, because a patent medicine contains a minute quantity of poison, it is thereby a poison within the meaning of the Act, and is prepared to carry each suitable case as it arises to the highest court.
3. That until a proprietor labels his medicine "Poison" it is unjustifiable to assume that it requires a "Poison" label, and such medicines may, in the opinion of the Association, be sold without any reference to the Pharmacy Act.

Fires.

The Mortimer Street Dispensary, Trowbridge, conducted by Mr. Groves, has been totally destroyed by fire.

On Wednesday the Brownhills Chemical-works was totally destroyed by fire—the damage is covered by insurance.

Wine Licences.

At Brighton Brewster Sessions on Tuesday, licences to sell wine were granted to Mr. Stephen Barnabas Hardcastle, chemist, 71 East Street, Brighton; and to Mr. William Else, chemist, 52 King's Road, Brighton; and at the Folkestone Brewster Sessions on Wednesday a wine licence was granted to Mr. Edward James Bishop.

New Postal Orders.

The following notice has been issued to the public:—

General Post Office, August 23, 1892.

On the 1st of September next a new form of postal order will be brought into use in place of the present form of order, which will cease to be issued on the 31st of August. The words "Not negotiable" will be overprinted on the new form, in order to indicate that it is to be used only for the purpose of making a direct remittance.

A new regulation has also been made under which the holder of a postal order may defer payment for any period not exceeding ten days from the date of issue by writing across the face of the order the words "Payable after —— days." In such case, however, the name of a money order office at which the order shall be paid must be inserted in the body. This regulation is printed on the face of the new order, and comes into operation on the 1st of September. On and from that date, therefore, an order bearing the words referred to will not be paid until the period specified has expired.

Irish News.

Drug contracts.

The Board of Guardians of the Ennis Union have appointed Mrs. Seymour, of the Medical Hall, Ennis, contractor for the supply of drugs, &c., to the various dispensaries of their districts. Messrs. Harrington, Cork, and Leslie & Co. and Hunt & Co., of Dublin, also sent in tenders.

Owing to the non-supply of drugs and medicines by the holder of the contract, the Board of Guardians of the Lurgan Union have annulled the contract, and appointed Mr. Joseph Calvert, pharmaceutical chemist, Lurgan, contractor for the remaining period of the term of the agreement.

Recovered from 4 oz. Liq. Opii Sed.

The Medical Officer of a Poor-law Dispensary in a Midland town in Ireland, lately swallowed 4 oz. of liq. opii sed., but, being detected at once, his life was saved by the exertions of his medical brethren. A local wag says it must have been "contract" liq. opii sed. which was taken, and that the contractor should get the Royal Humane Society's medal for saving life.

From Chemist to Doctor.

Mr. James A. Walsh, M.P.S.I., proprietor of Graham's Medical Hall, Westmoreland Street, Dublin, has lately passed the Final examination of the College of Surgeons and Physicians of Edinburgh, and intends practising in Dublin.

Certificates Wanted.

The certificates to act as assistants to pharmaceutical chemists have not yet been issued to the successful candidates for the qualification, though some of them are four months over-due.

French Pharmaceutical News.

(From our Paris Correspondent.)

Tobacco-poisoning.—A resident of St. Laurent d'Oingt, named Barthélémy Carré, 74 years of age, met with his death last week in a sad way. Feeling thirsty, he took a drink from a bottle which he thought contained wine, but which really contained tobacco-juice. He expired within an hour in the greatest agony. A pharmacist administered emetics but they had no effect.

The Opera Dentist.—The French Minister of Fine Arts has just had the task of appointing a dentist to the Opera House in Paris, the former titular being recently deceased. It appears that the position is without remuneration, but it gives free access to the theatre and to the side wings, and is much sought after. The *Figaro* takes occasion to remark that the ladies of the ballet probably rather need the services of the chiropodist.

Explosions of Alcohol in Paris.—Paul Delune, the assistant who was burned by the explosion at M. Billault's Chemical Laboratory, Place de la Sorbonne, last week, died of his injuries at the Hotel Dieu on Friday night. The explosion of another carboy of alcohol caused the commencement of a fire on Monday last at M. Bornet's pharmacy, 20 Rue St. Dominique. The flames spread rapidly in the dispensary, but the firemen were soon able to obtain the mastery. A laboratory assistant had placed the carboy too near a lighted stove.

Pharmacy at Marseilles.—During a recent visit to this southern city, the correspondent of The Chemist and Druggist had occasion to remark that the pharmacists there are thoroughly abreast of the times, and the profession evidently flourishes in a way that many other towns might envy. But competition is keen, and this has led one enterprising pharmacien to monopolise the tramway-tickets of the town. On one side of the ticket the name and address of the pharmacy is given, and on the other is an abridged price-list of the popular specialities. They are all "cut," but not to a desperate extent.

A Nitro-glycerine Explosion.—The manufactory of nitro-glycerine at Cugny, near Fontainebleau, belonging to the Société Française des Explosifs, was completely destroyed by an explosion last Thursday. The premises were built of brick and isolated by a distance of at least fifty yards from other buildings. Three workmen only were employed in the manufactory; they noticed that a tap of a pipe containing glycerine had become heated. They hastened to drown it, and then, fearing an explosion, decamped. A minute after they had left the place was blown up; the workmen were not injured. The damage is estimated at 20,000f.

Can a Pharmacist Refuse to Prepare a Prescription?—This question is raised by the *Union Pharmaceutique*, and advice is given to pharmacists never to refuse to prepare a prescription or the sale of a medicament, unless by so doing their responsibility is unduly engaged, or there is danger to the public health. The pharmacist is naturally within his right if he declines to prepare medicine concerning which a doctor has clearly made a mistake in the recipe. The editor considers it necessary to add that a pharmacist may decline to supply medicine if he considers that there is no chance of being paid for it. French pharmacists are further told that they are legally within their rights in refusing, for a whim, to supply medicaments.

Artificial Snuff.—A man named Bailleul, of whose life and character the French police have an extensive knowledge, appeared before the Rouen Bench last week on a charge of adulteration of snuff. Unlike the many inventors who hide their processes, he frankly gave the President of the tribunal his recipe—3 parts of tanners' bark to 1 part of baked-potato chips, both reduced to powder. To give piquancy, sprinkle with a little ammonia, diluted with water; perfume with essence of geranium. "But where does the snuff come in?" demanded the astonished Magistrate. The occupant of the dock stated that his mixture was entirely innocent of the harmful nicotine, and composed exclusively of the above-named articles. The Bench decided that during the next eight months this brilliant inventor shall be engaged in more honest work, and he will have 300f. damages to pay to the French Excise.

Poisoning by Arsenic.—From St. Giniez, in the south of France, a case very similar to that of the famous Maybrick affair is reported. In the present instance a Mme. Carmagnole is on her trial on the accusation of having caused the death of her husband by administering arsenic, a *post-mortem* examination having proved that there was a sufficiency of the poison in the deceased's intestines to have killed him. During the search made by the police at Mme. Carmagnole's house, several empty bottles which had contained "Fowler's liqueur" were found. The bottles bore the address of M. Storace, pharmacist, but he averred that the liqueur had not been purchased by Mme. Carmagnole, nor could he trace by the entries in his books by whom the bottles had been bought. It appears that the prisoner's husband had been suffering for many years before he died, and had undergone all kinds of medical treatment. It is suggested that the Fowler's liqueur may have been one of the many medicaments tried by the patient. The prosecution alleges that Mme. Carmagnole was on intimate terms with another man previous to her husband's decease.

Foreign and Colonial News.

The Odessa Drug-trade.—Last year 998,500 roubles worth of pharmaceutical goods were exported from Odessa. By far the greater part of this was shipped to Vladivostok, in Eastern Siberia—a rising port which has a very flourishing and growing trade with Odessa.

Transvaal Quicksilver.—A rich quicksilver-mine (says *South Africa*) is said to have been discovered in the district of Waterberg (Transvaal), near Zebedela's Station. Samples of cinnabar ore and pure quicksilver metal from this mine are reported to be at Johannesburg.

Exhibition at Batavia.—An exhibition of Dutch Indian products of agriculture and manufacture, to which also foreign articles suitable for introduction into the Dutch colonies will be admitted, is to be held at Batavia in 1893. Dr. M. Treub, Director of the Buitenzorg Botanical Gardens, will act as President of the Agricultural Section.

Mr. Thos A. Aitkin, of Maritzburg (Natal), has found Natal shale rich in paraffin wax and in sulphate of ammonia, as well as productive of oil which is said to equal the best American, and which can be produced locally at a third of the cost. An eminent Scottish consulting oil-chemist has been despatched to Natal, for the purpose of testing Mr. Aitkin's results and going further into the matter.

Mercurial Poisoning through External Application.—An anæmic girl in Germany, twenty years old, had mercurial ointment rubbed on the lower arm and the hand by a medical man, to cure a skin-disease. An hour after the application the girl swooned, and on the sixth day she died of acute mercurial poisoning. It is supposed that the mercury was absorbed through cracks in the girl's skin, and that her anæmic habit of body rendered the effect fatal.

A Faithless Cashier.—A co-operative association for the supply of medical and pharmaceutical assistance exists in Mannheim. Existed is perhaps the better word, for the cashier, who had just collected 20,000m. from the members wherewith to pay the doctors' and chemists' bills, has bolted with the cash—"gone through," as they say in Germany. The doctors decline to pay any more visits to members until they have been paid, and the poor pharmacists are reported to stand to lose 14,000m. between them.

A Pasteur Institute at Poona.—The establishment of a Pasteur Institute at Poona (India) may now be considered certain, a native gentleman having given a lakh of rupees towards the projected organisation: 10,000r. only will be spent as an initial outlay, leaving the interest on 90,000r. as an endowment fund. The Secretary of State for India has sanctioned the appointment of a medical officer to take charge of the Institute, the only provision being that it shall not involve any addition to the Indian Medical Service.

The Cryolite-fleet.—None of the Greenland fleet of sailing vessels which ply between Philadelphia and Ivigtut, in the cryolite-trade, had arrived in New York on August 8, and it is feared that they have been "nipped" by the Arctic ice. For several years the vessels have always arrived in June and made two or three voyages during the season. It is believed that the cryolite-vessels *Eluorine*, *Ivigtut*, *Platina*, and *Salinz* left Ivigtut for Philadelphia in the latter part of June. It is also stated that more ice, field and bergs, has been seen this year off the Newfoundland coast than ever before, and that the Greenland coast is almost impenetrable for sailing vessels.

A Rival to Stassfurth.—According to the German press, potash-deposits equalling the famous Stassfurth mines in richness and extent have been discovered in the Wipper Valley, near Sondershausen, in the German Principality of Schwarzburg-Sondershausen, by a mining-engineer from Dortmund. The Government of the Principality have submitted to the local Legislative Assembly a draft contract with the discoverer of the deposits in which the latter, under penalty of a fine of 3,000,000m., undertakes to form a company (the necessary capital of which is estimated at 8,000,000m.) to work the deposits. The Principality will take shares to the amount of 2,000,000m. in the company, and will receive a royalty of 15 per cent. on the net profits for the sole rights of working to be granted to the discoverer.

The American Pint in Canada.—In the United States old wine-measure still rules, but it is not lawful across the Canadian border. Mr. E. A. Goodman, a druggist, of 380 Yonge Street, Toronto, knows this now. On July 27 he had to pay a fine of $2 and costs for selling turpentine by wine-measure instead of by imperial measure. Defendant said the prescriptions of medical men were all dispensed on the basis of 16 oz. to the pint. In proof of this assertion he called Dr. W. B. H. Aikins, who showed that the medical profession always took 16 oz. as a pint, and not the imperial 20-oz. measure. But the magistrate pointed out that this was not a case of a doctor's prescription, but a pint of turpentine asked for, and the purchaser got only 16 oz. instead of the 20 oz. which he was entitled to.

Extension of Cardamom-cultivation in India.—The Government of Bengal have decided that lands newly prepared for cardamom-cultivation in the district of Kalimpong may be held rent-free for the first three years, and after that will be assessed at the rate of 10r. per acre. For the first three years the annual average yield of one acre of cardamom is *nil*, but in the fourth and fifth years about two maunds are obtained annually, and from the sixth to the eighth year, three, four, and subsequently five maunds. The average price of a maund of cardamom at Kalimpong for the past year has been 35r., but with the spread of cultivation the price is likely to fall considerably within the next ten years. Cardamom-growing is an exceedingly unhealthy form of industry. The cultivators are obliged to keep the plants entirely under water when the pods are ripening, to protect them against rats, and to spend much of their time at the bottom of unhealthy valleys.

Two Fires in One Week.—The wholesale drug warehouse of Messrs. Tarrant & Co., of New York, was visited by fire on August 3, when $40,000 damage was done, and again on August 8, when the loss amounted to $125,000. The second fire broke out early in the morning, as the men of the salvage corps were busy with the wreckage of the first conflagration. All the people in the building made their exit without injury. The smoke which came from the burning building was heavily laden with the odour of burning drugs and perfumery, proving a great source of annoyance to the firemen, who were almost stupified by it. Travel on the Ninth Avenue elevated railroad on the down-town track was impossible while the fire lasted. The greater portion of the loss ($90,000) will be paid by the insurance companies. The origin of the fire is attributed to the explosion of a barrel of alcohol. It started in the same building and on the same floor as the first fire, which was attributed to spontaneous combustion among the dried drugs.

Croton-trees in Tea-plantations.—Some time ago a writer in the *Times of Ceylon* called attention to the danger in planting croton-oil trees among tea-bushes, as was then done on many places in the Matale district, since it was feared that while gathering the tea-leaves, some croton-leaves might accidentally fall into the baskets and be manufactured into tea. Natives have a dread of the croton-tree, as its poisonous properties are so well known to them that they fear even to pass under its shadow. Even native medical practitioners, in prescribing the oil obtained from the seed as a purgative, give only one drop as a dose for an adult. This is rubbed on a betel-leaf, chewed, and swallowed. But the tea-planters of Matale took no heed of this warning, till at last people in England began to make inquiries regarding the laxative quality of certain brands of tea sent from Ceylon, by the use of which several persons had been taken ill. Shortly after this almost all the croton-trees on the tea-estates disappeared. Planters who did not go in for tea and allowed their crotons to remain, are now making some profit, as of late there has been a demand for the seed.

Gazette.

PARTNERSHIPS DISSOLVED.

Cattley, T., Cattley, M. H., and Cattley, H. T., under the style of Anderson & Cattley, Great Suffolk Street, Southwark, soap manufacturers; as far as regards M. H. Cattley.

Chawner & Pegler, Clay Cross and Stonebroom, physicians and surgeons.

Patterson & Allnutt, High Street, Kingsland, dental surgeons.

THE BANKRUPTCY ACTS, 1883 AND 1890.

Receiving Order.

Vincent, John Coombe, Bristol, brush and comb manufacturer.

Adjudication.

Parker, Jackson (trading as J. Parker & Co.), Wakefield, soap manufacturer.

The Chewing-gum King.—"A manufacturer of chewing-gum in Cleveland is a candidate for Congress. Twenty years ago he was not worth $500; to-day he is rated above $800,000. One little word explains his rise to opulence—gum. He is the largest manufacturer of chewing gum in the United States. His factory employs 300 persons and turns out between four and five tons daily Last year his profits are said to have approximated $275,000, and this year he expects them to reach $300,000." So says an American contemporary. We have a case yere how men may Soudanly gum to the front if they chews to stick closely to their business.

PHOTOGRAPHIC NOTES.

TONING AND FIXING GELATINO-CHLORIDE PAPER.

In a recent number of *Wilson's Photographic Magazine* Mr. Lewis Bradfisch states that the proper manipulation of this paper is by separate toning and fixing. After washing he recommends a toning-bath of chloride of gold, acetate and carbonate of sodium; when toning is complete a combined hardening and fixing bath, consisting of 40 minims acid sulphite of sodium in solution and 2 oz. of powdered alum in 20 oz. of water; when mixed 2 oz. of hypo. is added. This bath will not keep, and must be freshly prepared every day. On immersion the prints turn yellow, but assume the proper tone in from five to ten minutes.

HOME SALTED AND SENSITISED PAPER.

Use Whatman's paper, and salt with the following:—

Chloride of ammonium..	2 drachms
Gelatine	3½ „
Water (warm)	36 oz.

The prints are placed in this, and brushed over with a tuft of cotton-wool, and have to lie immersed till the paper is fully expanded; they are then taken out, and hung up to dry in a warm room. The paper may be floated for about three minutes on the bath singly. Rapidity of printing is secured by the use of a little salt with the gelatine.

The sensitising bath is—

Nitrate of silver..	3 drachms 12 grs.
Distilled water	2 oz.

The nitrate, when dissolved, is converted into ammonia nitrate of silver by adding ammonia drop by drop till the precipitate first formed is redissolved. It should then be divided into two equal parts, to one of which add nitric acid till the litmus test-paper shows slight acidity. The two halves are then mixed, and the bulk made up with water to 4 oz.

THE THEORY OF DEVELOPMENT.

Professor H. E. Armstrong at the last meeting of the Camera Club attacked the problem which has allured so many investigators, presented by the development of the dry plate. This paper has been published in the *Chemical News* (65, 181), and those who take a genuine interest in the chemistry of photography, and who can face half-an-hour's hard reading, should refer to the original paper. In regard to the influence of bromide as a restrainer, and the accelerating effect of alkalies, Professor Armstrong states that when ammonia is used as the accelerator, the addition of bromide prevents the solution of silver bromide in the ammonia, and the image is probably not composed entirely of silver, but of a species of pigment, possibly formed by the dissolved silver and the colouring-matter from the oxidised developer, to which also the formation of the pecular fog which often occurs with ammonia and pyro developers may be attributable. In the case of fixed alkalies being used as accelerators, the bromide has a different action, probably that of neutralising the hydrobromic acid formed and thus preventing the reversal of the action which would otherwise take place. Also, as a silver haloid in the presence of an alkali and reducing agent tends to undergo reduction, the accelerating effect of adding alkali may be understood, as well as the restraining influence of bromide, which tends to reverse the action. Professor Armstrong thinks that the invisible image is not the same as the darkened product formed on development—*i.e.*, an oxyhaloid compound of silver; that there are perhaps two latent images formed, one by the blue and the other by the yellow rays, these behaving differently during development—the blue image being silver and the yellow a silver oxyhaloid, the former being comparable with the silver wire in the De la Rue-Müller cell, whilst in the case of the latter the silver bromide undergoes electrolysis in a circuit which includes oxygen, the halogen which is liberated converting the silver formed by the action of the blue rays into silver haloid; but in gelatine plates this halogen is taken up, and after a time, depending on the exposure, the gelatin becomes saturated, and the silver tends to become rehalogenised; this view being borne out by the phenomena of over-exposed plates flashing out on development, owing to the richness in oxyhaloid. If sufficient bromide is present the oxyhaloid may be converted into haloid and so the flashing-out prevented.

GELATINE CHLORIDE-OF-SILVER PAPER.

The growing use of gelatine chloride-of-silver printing out paper will give interest to the following extract from a paper on its manipulation read by Mr. Mummery before the North Middlesex Photographic Society. Referring to the "combined toning and fixing bath" he says:—"All formulæ for the removal of hypo. by other agents should be studiously avoided, as by their means the salt is merely converted into other compounds almost as detrimental to stability, and is not eliminated. Combined toning and fixing baths probably owe their extended use to to the saving of trouble attendant upon the loss of separate fixing." The following bath is recommended by Liesegang:—

A.

	Oz.
Water	24
Hyposulphite of soda	6
Sulphocyanide of ammonium	1
Acetate of soda	1
Sat. sol. of alum	2

B.

Dissolve 30 grains of silver in ½ oz. of water; add 30 grains of common salt, stir till a white precipitate is thrown down. Pour *B* into *A*, and leave for a day; then filter, and add the following:—

C.

Water	6 oz.
Chloride of gold	15 gr.
Chloride of ammonium	30 „

This bath will keep for any length, and will give good prints with any of the papers now in the market.

The Blackfriars Sensitising Company recommend the following bath for their well-known "Celerotype" paper:—

A.

	Oz.
Water	24
Hyposulphite of soda	6
Sulphocyanide of ammonium	1
Acetate of soda	1½
Sat. sol. alum	10

Fill the bottle containing the above with scraps of sensitised paper or unfixed prints, and allow it to stand for a day; then filter, and add:—

B.

Water	6 oz.
Chloride of gold	15 gr.
Chloride of ammonium	30 „

The prints with this bath require no preliminary washing.

Another simple bath is made as follows:—

Chloride of gold..	6 gr.
Nitrate of lead	3 „
Hyposulphite of soda	3 oz.
Distilled water	20 „

This bath has the advantage of being free from alum.

In using combined toning and fixing baths it is best, in all cases, to dissolve the gold separately and neutralise it with powdered chalk, and afterwards to filter and add to the other salts, which should also have been dissolved and filtered.

A NEW LENS.

Messrs. Ross & Co., of New Bond Street and Clapham Common, have introduced a new lens—the "Concentric." In this the outer and inner surfaces of the glass in the doublet lens has the same centre of curvature. The diameter of a lens of 7-inch focus is ¾ inch, and it is fitted with stops varying from F. 16 to F. 32. The lens is so light that with mount and cap included it does not exceed 4 oz. in weight. It will cover a 7 × 5 plate, and with F. 20 covers a whole plate. With F. 16 the field is flat, objects near the edge being as well defined as those in the centre of the plate, and the whole is brilliantly illuminated. The doublet consists of an outer plano-convex lens of high refractive power cemented to an inner plano-concave of lower refractive power, the dispersion of the inner glass being equal to that of the outer lens. The "Concentric" is specially suited for landscape work, and may be used with much advantage for architecture and copying. Using the aperture at F. 13 the lens will give soft and well-diffused portraits. The "Concentric" lens may be used for every pupose; taking off one of the combinations it forms a long focus landscape lens. The lens is made in eleven sizes—to cover from quarter plate up to 18 × 16.

Good Developer for Lantern Plates.

The editor of *Photographic News* gives the following as suitable for most brands of commercial plates:

A.

Hydroquinone	80 grs.
Metabisulphite of potass.	10 ,,
Bromide of potass.	40 ,,
Distilled water to make	20 oz.

B.

Potass. hydrate (sticks)	160 grs.
Sulphite of soda	800 ,,
Distilled water to make	20 oz.

Equal parts of *A* and *B*, mixed just before using.

Coating Opals.

Mr. Henry Wade, a most successful amateur photographer, recently read a paper before the Manchester Camera Club upon "Gelatino-Chloride of Silver Printing for Paper and Opals." He gives the following formula for the sensitive emulsion:—

No. 1.

Silver nitrate	$\frac{1}{4}$ oz.
Citric acid	1 dr.
Water	1 oz.

No 2.

Gelatine	$\frac{3}{4}$ oz.
Water	6 ,,

No 3.

Alum	20 grs.
Rochelle salts..	20 ,,
Ammonium chloride	10 ,,
Water	1 oz.

In practice, dissolve Nos. 1, 2, and 3 in separate vessels; then mix Nos. 2 and 3 together, and gradually add the silver solution to the salted gelatine, very slowly stirring during the whole time, so as to obtain a fine chloride of silver. If it is added in a mass, the particles are apt to be coarse. When well mixed, heat up to 150° and filter through two thicknesses of muslin. With this emulsion washing is dispensed with. The opals to be coated should first be examined to see that they are perfectly even. If not, they must be ground with emery until the surface is uniform. They must also be quite free from grease or dirt. To cleanse them, soak for half an hour to an hour in a weak solution of hydrochloric acid and water, and dry with a clean cloth. In coating the plate, pour the emulsion in a pool in the centre of the plate and guide it with a glass rod to the edges. Pour off the superfluous emulsion, leaving only a thin film upon the plate. Place the opal on a level surface to set. Smooth or flashed opals are much easier to coat than those with a ground surface, and the emulsion runs to the corners without guiding. When set, place the opals on a rack and leave them in the dark to dry; they will be ready in the following morning for printing. All operations, including the preparation of the emulsion and coating, should be performed in a weak light.

Testing Lenses.

Major Darwin, in a paper read before the Royal Society, thus describes the methods employed at Kew for testing lenses:—The principal focal length is found by revolving the camera through a known angle, and measuring the movement of the image of a distant object on the ground glass. The observation is directly read off on a scale on the ground glass. The observation is made when the image is at a point some 14° from the axis of the objective, and it is proved that the focal length thus obtained, even though it may not be identical with the principal focal length as measured on the axis, is, nevertheless, what the photographer in reality wants to ascertain. This test for distortion depends in principle on ascertaining the sagitta or deflection in the image of a straight line along one side of the plate. It is shown that to give the total distortion near the edge of the plate would not answer the practical requirements, and that the proposed method of examination does give the most useful information that can be supplied. Definition is found by ascertaining what is the thinnest black line the image of which is just visible when seen against a bright background. It is shown that this is the best method that could be devised of measuring the defining power of an objective, and that it is not open to serious objections on theoretical grounds. The test for astigmatism is performed by measuring the distance between the focal lines at a position equivalent to the corner of the plate and by calculating from the result thus obtained the approximate diameter of the disc of diffusion due to astigmatism. These tests have been devised by Major Darwin, assisted by Mr. Whipple, the superintendent of the observatory, aided by frequent consultations with Captain Abney.

Mountant for Gelatino-Chloride Paper.

	Oz.
Best thin Scotch glue	3
Water	3
Golden syrup	$\frac{3}{4}$
Methylated spirit	3

Soften the glue in 2 oz. of the water in a jar, heat gently in a pan of hot water, and when thoroughly liquid add the syrup. Add the remaining ounce of water to the spirit, and pour this slowly into the jar, keeping the mixture stirred all the time.

This mountant, which is recommended for the Ilford P.O.P. paper, will keep good indefinitely, and is always ready for use by gently warming the bottle in hot water. It dries quickly.

Toning-solution.

The following formula is recommended by Mr. James Wood, of Liverpool, known in the photographic trade as "Washer" Wood, in compliment to the merits of his admirable washes for prints and plates:—

Stock Solution.

Sodium acetate	180 gr.
Sodium bicarbonate	90 ,,
Borax	330 ,,
Distilled water..	4 pints

Toning-bath.

Stock solution..	5 oz.
Gold chloride	1 gr.

Mix two hours before using.

The best lines are obtained by mixing with an old bath.

Eikonogen Developer.

No. 1.

Warm water	40 oz.
Sodium sulphite (Merck's crystals) ..	480 grs.
Eikonogen	480 ,,

No. 2.

Caustic potash	480 grs.
Water	3 oz.

This may be mixed in the proportions of 2 oz of No. 1, waiting until the image appears before adding No. 2, then add $\frac{1}{2}$ drachm of No. 2 at a time until the details are brought out.

Control of Lenses.

In his address to the Photographic Convention Mr. George Davison spoke of the local control which Mr. Van der Weyde has devised. By the use of his method the relative proportions of features in portraits or objects in other pictures can, it is said, be altered at will. The relative increase or diminution of parts can be carried to any extent. It is therefore evident that the process can be applied to the artistic and the grotesque.

SCIENTIFIC MYSTERIES.

THIS has proved an excellent book for chemists' counters. "They are selling freely," write a number of chemists last winter. And not only do the books sell at a profit themselves; they establish a business in chemicals and apparatus, which is likely to be permanent. Chemists can obtain these books in dozen parcels (a show-card in each parcel) at 8*s.* 6*d.* per dozen from any of the following firms:—

Ayrton & Saunders, Liverpool
Barclay & Sons, London
Bleasdale, Wm., & Co., York
Boileau & Boyd, Dublin
Clay, Dod & Co., Liverpool
Duncan, Flockhart & Co., Edinbro.
Edwards, Wm., & Son, London
Evans, Gadd & Co., Exeter
Evans, Lescher & Webb, London
Evans, Sons & Co., Liverpool
Glasgow Apothecaries Co., Glasgow
Goodall, Backhouse & Co., Leeds
Harris, Philip, & Co., Birmingham
Harrison, Parkinson & Co., Bradford
Hirst, Brooke & Hirst, Leeds
Ismay, John, & Sons, Newcastle
Lloyd, T. H., & Co., Leicester
Maw, S., Son & Thompson, London
May, Roberts & Co., London
Moss, J., & Co., London
Newbery, F., & Sons, London
Newsholme, G. T. W., Sheffield
Oldfield, Pattinson & Co., Mnchstr
Pinkerton, Gibson & Co., Edinbro.
Potter & Clarke, London
Raimes, Clark & Co., Edinburgh
Raimes & Co., York
Sanger, John, & Sons, London
Silverlock, H., London
Smith, A. E. Bertie, & Co., Bombay
Smith, T. H., & Co., Edinburgh
Southall Bros. & Barclay, Brmngm.
Sutton, W., & Co., London
Thompson, John, Liverpool
Thompson, Walters, Hole & Co. (Limited), London
Townson & Mercer, London
Woolley, James, Sons & Co., Manchester.
Wright, Layman & Umney, London
Wyleys (Limited), Coventry

We will supply a parcel of handbills, with the seller's name attached, to any chemist who has stocked these books and who will send us 3*d.* towards the cost of carriage.

COMPACT AND CLEAR EXPLANATIONS.

If anybody with an eye to Christmas entertainments is looking for information upon the *modus operandi* by which the most interesting chemical and physical illusions may be produced, here is the book needed. The explanations are compact and clear, and are fully supplemented by cuts and diagrams. A chapter on "Parlour Chemical Magic" is particularly timely.—*Newcastle Chronicle.*

BOYS WHO LOVE EXPLOSIONS,

queer smells, and the other small excitements of experimental chemistry will be interested in "Scientific Mysteries," a shillingsworth emanating from the office of THE CHEMIST AND DRUGGIST. Its pictures and letterpress combine to show how chemical, physical, and optical illusions may be produced.—*Evening News and Post.*

ITS MERITS JUSTIFY A LARGE SALE.

For those of our readers who are of a scientific turn of mind we know of no better or more interesting work than "Scientific Mysteries," which has just been issued from the office of THE CHEMIST AND DRUGGIST (42 Cannon Street, E.C.), and published at 1*s.*, and which will be circulated with the medium of the chemists and druggists. This is an octavo book of 100 pages, with 80 illustrations, and contains nearly 200 chemical, physical, and optical experiments and illusions. It is capitally put together, and is well bound. "Scientific Mysteries" has been issued at a very opportune moment, and, once it becomes known, the book is certain to be in great demand. Its merits justify a large sale.—*Hackney Express.*

AN EYE TO CHRISTMAS PARTIES.

A very useful volume, "Scientific Mysteries," issued from the offices of THE CHEMIST AND DRUGGIST, shows how a large number of simple and effective experiments can be made in illustration of chemical, physical, and optical wonders. The collection embraces all kinds of chemical and other experiments, from the strictly scientific to the parlour, and gives details for the manipulation of much that can be made at once instructive and yet amusing. At this time of the season the instructions could be followed with an eye to the entertainment of Christmas parties.—*Weekly Scotsman.*

MAY BE A TREASURE.

A collection of simple and effective experiments, illustrating chemical, physical, and optical wonders. (Offices of THE CHEMIST AND DRUGGIST.) The ingenious boy whose parents do not fear to let him have wonderful uncanny apparatus and deadly chemicals for playthings may find in this book suggestions for illimitable recreation. Some of the experiments are as innocent as they are ingenious, but it is not every boy we would trust to manufacture hydrogen, to melt iron, or to sport with nitric acid, mercury, and similar chemicals. For a boy who can be trusted to be careful the book may be a treasure and may give a direction to taste strongly influencing future years.—*Birmingham Daily Post.*

PHYSICAL AND OPTICAL WONDERS.

Boys of a scientific turn of mind will appreciate "Scientific Mysteries," a little book issued from the office of THE CHEMIST AND DRUGGIST, 42 Cannon Street, E.C, which gives in brief and practical shape directions for performing a large number of simple and effective experiments, illustrating chemical, physical, and optical wonders.—*Liverpool Daily Post.*

CAPITAL ILLUSTRATIONS.

A collection of simple experiments, with capital illustrations and clear directions, is published at the office of THE CHEMIST AND DRUGGIST under the title of "Scientific Mysteries." The experiments are well up to date, and deal with "chemical, physical, and optical wonders." It is needless to say that a good deal of apparatus is required for carrying out the experiments.—*Manchester Guardian.*

HANDBOOK OF PARLOUR-MAGIC.

This is a capital little handbook of parlour-magic, combining chemical, physical, and optical wonders, and being in itself an initiation at once into simple magic and the elements of science. The experiments are full of variety, are simple in the explanation, and are well illustrated. It is just the right present for an ingenious and clever boy.—*Birmingham Daily Gazette.*

PROVIDES MUCH ENTERTAINMENT.

Sir David Brewster's "Letters on Natural Magic" has no place in the memory of the younger generation; but something of its spirit will be found in a little book entitled "Scientific Mysteries," which has been published at the offices of THE CHEMIST AND DRUGGIST—presumptively in view of the coming holiday season. The object of the compiler is to furnish by letterpress and illustration directions for a number of simple and effective experiments illustrating chemical, physical, and optical wonders. It opens appropriately with directions for restoring chaos, and resolving it again into what were anciently known as "the four elements"—all of which is to be done in a phial with the aid of mercury, carbonate of potash, blue-tinted spirits of wine, and red-tinted turpentine. Altogether the little volume provides much entertainment for the family circle, which may fairly be described as harmless, though "artificial lightning," "brilliant explosions under water," and "decapitation without murder," may sound rather alarming.—*Daily News.*

"SCIENTIFIC MYSTERIES" IN BELFAST.

Our Belfast correspondent says:—Several chemists here have turned booksellers *pro tem.*, your instructive and amusing little work, "Scientific Mysteries," being exhibited. One chemist informs me he has disposed of quite a number, and it has brought increased business in chemicals.

BOOKS FOR THE CHEMISTS' LIBRARY.

"Art of Dispensing," 3*s.* 6*d.* (post free, 3*s.* 10*d.*).

Alpe's "Handy-book of Medicine-stamp Duty," 2*s.* 6*d.* (post free, 2*s.* 9*d.*).

Proctor's "Manual of Pharmaceutical Testing," 2*s.* 6*d.* (post free, 2*s.* 9*d.*).

"Veterinary Counter Practice," 3*s.* 6*d.* (post free, 3*s.* 9*d.*).
These can be obtained at the published prices from any of the firms named above or from 42 Cannon Street, E.C.

Practical Notes and Formulæ.

ROCK-CANDY SYRUP.

THIS syrup is very much used in American pharmacy, especially at soda-fountains. Professor Ebert says that it is simply the mother-liquor from sugar crystallisation. It is, therefore, of the nature of molasses—*i.e.*, a mixture of cane-sugar and glucose. It is dear at the 55c. a gallon that druggists have been paying for it, as simple syrup can be made from granulated sugar at 34c. a gallon.

LINOLINE.

THOSE who get tired of cod-liver oil emulsion should try this. It was originally, says the *Pharmaceutical Record*, a suggestion of Dr. W. H. Thomson, of New York, who prescribed it largely twenty years ago. It is a pleasant-tasting and admirable emulsion, without the disagreeable features of many of the cod-liver-oil emulsions. The formula is:—

Linseed oil	15 oz.
Oil of wintergreen	2 drachms.
„ cinnamon	2 „
Powdered acacia	10 oz.
Water	24 „
Glycerin	5 „
Simple syrup..	10 „
Dilute hydrocyanic acid	2½ drachms

Make an emulsion in the usual way. Dose: A teaspoonful gradually increased.

WORMS IN SHEEP.

WHEN sheep are badly infected with both threadworms in their lungs and tapeworms in the intestines, active measures are required. The following is an approved recipe, but special care is required not to exceed the prescribed dose, and also that the arsenic is perfectly dissolved before any of the solution is used. The proportions of arsenic, soda, and water are as follows:—For 50 full-grown sheep: Arsenic, 2 drachms; soda, 4 drachms; water, 1½ pint; dose, 1 oz. For 50 weaners: Arsenic, 100 gr.; soda, 3½ drachms; water, 50 oz.; dose, 1 oz For 50 lambs: Arsenic, 80 gr.; soda, 3 drachms; water, 50 oz.; dose, 1 oz. Salt should always be kept where the sheep can lick it, and in dry weather flowers of sulphur may be mixed with it. The sheep will not take too much. For tapeworm in sheep the following is recommended:—Powdered areca nut, ½ to 1 drachm; oil of male fern, 10 to 20 drops; give in treacle and water, and follow the next day with a purge. For purges use:—Sulphate of magnesia, 2 oz.; warm water, 1 pint—in one drench. We quote this from an Australian stock journal.

PRESERVATION OF INDIARUBBER GOODS.

IN an article (*India Rubber World*) on "The Deterioration of Druggists' Rubber Goods" Mr. J. A. Sherman mentions a few of the causes which go to spoil this class of stock, and criticises the means which are taken to prevent deterioration. Fine surface-cracks are taken as evidence that the goods are going wrong, and this may be due to (1) being kept in warm dry air, as on top shelves in the shop; (2) exposure to sunlight; thus all goods shown in the window rapidly become bad. These are really the chief sources of trouble. As to the means of preservation, a New York manufacturer claims that small articles like catheters and tubes keep well immersed in water, but Mr. Sherman says that this is an impracticable method when generally applied. It has also been claimed that keeping the goods in air-tight boxes preserves, but this again is denied, and so is the statement that a coating of paraffin is beneficial. Paraffin mixed with unvulcanised rubber will destroy the latter in a short time, and it is very problematical whether it would not have the same effect on vulcanised goods. Exposure to the air is not considered to be detrimental, although a jet of oxygen directed upon an indiarubber ball causes it to soften. On the whole, proper vulcanisation is the only security that indiarubber goods will keep well, and as long they are stored in a part of the shop where the temperature is equable and moderate the most is done that can be to prevent deterioration.

SACCHARINE SOLUTIONS.

SOME experiments made by Mr. Leon C. Fink in regard to the preservation of dilute syrups of glucose and sucrose show (*Bull. Phar.*) that the presence of ½ grain of salicylic acid in each ounce is an absolute safeguard against the formation of fungus. Samples which he has treated have remained perfectly sweet and transparent after exposure for one year.

MICRO ORGANISMS IN AQ. MENTHÆ PIP.

MONS. H. BARNOUVIN, whose researches into the micro-organisms which exist in medicinal waters we have had occasion to mention, reports (*Rep. de Pharm.*) that he has found in peppermint-water a round and light yellow-coloured unicellular organism, which seems to be that which induces in the water the yellowish precipitate sometimes observed. This precipitate is really composed of the organisms which may be referred to the *Micrococcus aurantiacus* of Cohn.

CEMENTS.

THE following formulæ have been devised by Eugen Dieterich:—

Cement of Pompeii, or Universal Cement.

Dissolve 8 oz. of sugar in 24 oz. of water in a glass flask on a water-bath, and to the thin syrup add 2 oz of slaked lime; keep the mixture at a temperature of about 70–75° C. for three days, shaking frequently; then cool, and decant the clear liquor. Dilute 6½ oz. of this liquor with as much water, and in the mixture steep 16 oz. of fine gelatine for three hours after heating to effect solution. Finally add to the mixture 1½ oz. of glacial acetic acid, and 15 grains of pure carbolic acid.

Diamond Cement.

	Oz
Fine gelatine	5
Water	4
Glacial acetic acid	1

Let these stand together for several hours, then heat to effect solution, and add 10 grains of carbolic acid to preserve the cement.

Liquid Glue (Sydetikon).

For this use 4 parts of the above-mentioned saccharated solution of lime and dissolve 6 parts of glue or gelatine in it as there directed. Then neutralise the lime with a third part of oxalic acid, and add carbolic acid in the above-mentioned proportion as a preservative.

Cement for Porcelain.

Twenty parts of white lead and 12 parts of pipeclay, carefully dried, are incorporated with 10 parts of boiled linseed oil, heated on a water-bath: the cemented articles are dried slowly in a warm place.—*Pharn. Centralhalle and Amer. Jour. Phar.*

KOLA TONIC WINE.

	Oz.
Fluid extract of kola	3
Syrup of orange-peel	8
Tincture of nux vomica	1
Malaga to	100

Mix, set aside for three weeks, and decant the clear wine.

TASTELESS CASCARA SAGRADA.

REFERRING to Mr. Moss's non-alkaline method for making tasteless extract of cascara sagrada, Mr. Thomas Stephenson, of Bombay, says that the process requires some modification in India, as the length of time required for the percolation of the bark with water is apt to cause fermentation in the former, with consequent destruction of the product.

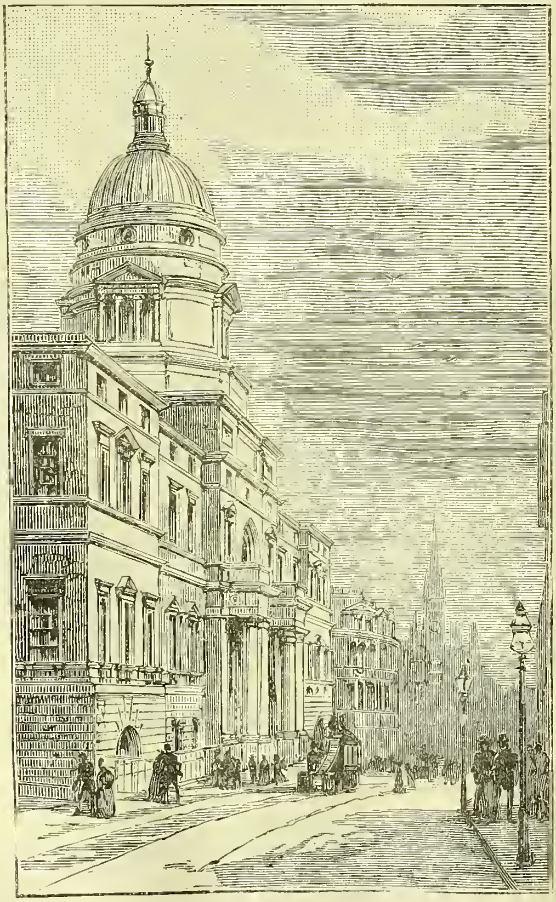
WOMEN-PHYSICIANS IN ENGLAND.—The number of women on the Medical Register is now 130, and 140 are being educated under the conditions laid down by the General Medical Council.

EDINBURGH.

FROM Cardiff, a town of yesterday, to Edinburgh, a city whose annals vanish in the mists of antiquity, is a topographical transition in which a pharmaceutical journalist cannot attempt to follow the Badaekers and Blacks of literature. From the shores of the Forth on the north to the shadows of Blackford Hills on the south; from Leith in the east to the Tor-phin in the west, there are scores of buildings and historic spots in Edinburgh upon which one might linger. But we may more profitably devote the space which we generally reserve for the towns in which the Conference meets to some notes on Edinburgh as a medical centre. To this we have already referred in the article printed in our Summer issue.

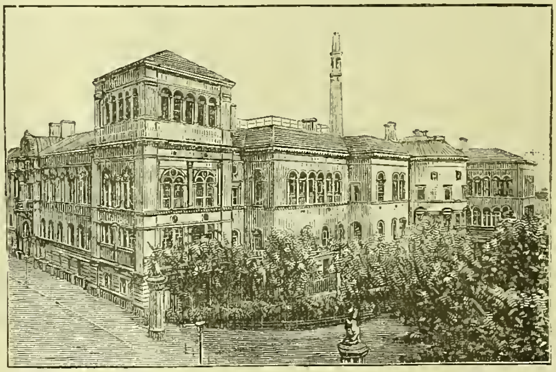
THE UNIVERSITY

is situated on the South Bridge, which bounds it on the east, South College Street bounding the west and Chambers Street the north. According to the inscription on the South Bridge portico, the University was founded in 1582, but, as a matter of fact, the site upon which it stands was purchased by the magistrates in 1563, a prelate having bequeathed 8,000 merks for the purpose of founding a University in the city. Mary Stuart favoured the scheme, her son, James VI, granted a Charter in 1582, and teaching commenced in the year following. Divinity, law, and philosophy were the earliest faculties, but medicine was not a part of the curriculum until 1720, up till which time the University was of little account, St. Andrews outshining it in every respect. There had been several attempts to teach medicine on sound lines for thirty-five years before Alexander Monro *primus* was appointed by the Town Council (who, by the way, still have a share in University control) in 1720; but the advent of Monro was the beginning of the great progress which has continued to this day. In that progress the Monroes, William Cullen, Joseph Black (the chemist), several Gregorys and Duncans, Sime, Christison, and many others whose names occur as noted discoverers in medical and physical science, have had a share. The fine University building dates from the end of last century. It was commenced in 1789, but the poverty of the city prevented its completion until about 1815, when the Government granted the University 10,000*l.* a year to aid in the work. It still gets the grant. The buildings form a regular parallelogram with a court in the centre, the north and south sides being 356 feet in length, and the west and east 255 feet. In the court there is a marble statue of Sir David Brewster, who was Principal of the University. The narrowness of the street in which it is situated detracts from the effect which the truly magnificent proportions of the building should produce.



THE UNIVERSITY, SOUTH BRIDGE.

The University has faculties of arts, divinity, law, and medicine, as well as departments of agriculture, education, music, and science. It has between 4,000 and 5,000 students, about half of whom belong to the Medical School. The rapid growth of this School since the fifties is one of the striking features about the University. When the Conference visited Edinburgh in 1871 the whole of the faculties were accommodated in the South Bridge building; now we have to go up South College Street to Teviot Row in order to get to the medical quarters, which rival the parent building, if not in purity of architectural style, certainly in amplitude. There all the medical classes are accommodated except natural history, which is still in the old building, and botany, which is taught at the Botanic Gardens, Inverleith Row. The School stands beside the Royal Infirmary—in the architectural sense unhappily, for the Infirmary is in Scotch baronial style, which always looks well in Scotland, and the Medical School is Early Italian, which looks exotic and trivial. But we must take it from the inside, and here we find everything consistent with the fact that the School is the largest in the world. The practical laboratories are a feature of the arrangements, the dissecting-room, especially, being noteworthy for its completeness and magnificent proportions. The McEwan Hall (the gift of Mr. William McEwan, M.P.) is approaching completion, and is to be used for graduation ceremonials.

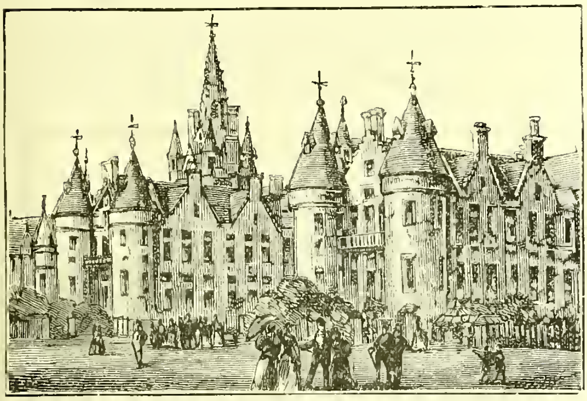


UNIVERSITY MEDICAL SCHOOL. (FROM THE WEST.)

Amongst the medical professors are Sir Douglas Maclagan (medical jurisprudence), the Privy Council's visitor to the pharmaceutical examinations; Dr. T. R. Fraser (materia medica); Dr. Crum Brown (chemistry), President of the Chemical Society; and Sir William Turner, the anatomist, whose chair is reputed to be the richest professorial appointment in the world. The Royal College of Surgeons headquarters are in Nicolson Street. This College has recognised teachers there (Dr. Stevenson Macadam holding the chemistry chair) and in the School of Medicine, Chambers Street. There is also the Royal College of Physicians in Queen Street, whose hall is used for the Conjoint Board examinations. The Physicians' Hall contains an exceptionally fine library, and a small but valuable museum of materia medica, which includes the collection of cinchona-barks formed by Martius.

THE ROYAL INFIRMARY

is a national institution. Its site is on the slopes overlooking the Meadows, the Meadow Walk separating it from the University Medical School. The Infirmary was established in 1736, and for more than a century its good work was carried on in an inadequate building off South Bridge. In 1870, the Prince of Wales laid the foundation-stone of the buildings in Lauriston, and although twenty years have not elapsed since they were occupied they are already inadequate, and an addition is contemplated. The plan of the buildings is on the pavilion system, a number of distinct buildings being connected with each other, and the main frontage presenting a three-storeyed elevation, surmounted by a tower and spire. This faces Heriot's Hospital —an old educational institution. The section of the Infirmary which we illustrate shows two of the wings to be seen from the Meadows. The only hospital in London resembling the Infirmary is St. Thomas's. The Edinburgh Infirmary can accommodate about 700 patients, but it has a superficial area equal to the accommodation, on London principles, of at least 100 more. The dispensary is under the charge of Mr. Charles Arthur (formerly manager to James Robertson & Co.), who has four assistants. The dispensary is quite in keeping with the great institution of which it is a part, and the most advanced pharmacist cannot spend half an hour in it without learning something new.



Two Wings of the Infirmary. (From the South.)

ROYAL MEDICAL SOCIETY.

Of the medical societies in Edinburgh the most interesting in all respects is the Royal Medical, whose abode is in George IV. Bridge. It happens to be the oldest medical society in the kingdom, for it was founded in 1737, the next in order being the Medical Society of London, which dates from 1773. The peculiarity of the Royal Medical is that it is a society for students who meet together for mutual improvement in medical matters, much in the style that chemists' assistants meet. A library (now one of the best in Edinburgh) has been a standing feature of the Society from the beginning, which was in Dr. William Cullen's student days. He was one of the first members, and from his day until now the annals of medicine are dotted with the names of men who have been members of the Society. A few names will suffice to show what the Society is. Amongst the illustrious dead: Thomas Addison, the revered of Guy's; Akinside, the poet; Richard Bright, of Bright's disease fame; Oliver Goldsmith, whose ability as a doctor is shadowed by his fame as a *littérateur*; Mungo Park, the African traveller; Charles Darwin, the naturalist; Sir James Y. Simpson, the introducer of chloroform; Sir Dominic Corigan, first President of the Irish Pharmaceutical Society; Dr. John Brown, a brother of Professor Crum Brown—Dr. John was author of "Rab and his Friends," and has been called the Scotch Charles Lamb. Sir Gilbert Blaine, the organiser of the Naval Medical Service, was also a President. He was the man who first made lime-juice what it is—the universal preventive of scurvy. Amongst the living who have filled the chair are all the professors of the Edinburgh medical faculty, Sir Dyce Duckworth, Sir Joseph Lister, Sir James Crichton Browne, Dr. Lauder Brunton, and Dr. Benjamin Ward Richardson. The influence of the Society has been immense, and no juniors' society is more highly respected, it being counted a peculiar honour to be selected as the principal guest at the annual dinner. Dr. David Ferrier was the last one so honoured. The Society has two senior and two junior Presidents.

SCHOOLS FOR WOMEN.

The Royal Colleges of Edinburgh were amongst the first to admit women to the medical examinations, and the consequence is that two prosperous medical schools for women are established in the city, and the Royal Infirmary managers are now to provide the necessary clinical practice for them. Mixed classes have been impossible so far, in spite of the sturdy manner in which Dr. Jex-Blake tried to assert her right to attend the University classes fifteen or sixteen years ago.

MEDICAL CHARITIES

are very numerous in Edinburgh. The Maternity Hospital, the Home for Incurables, eye, ear, and throat dispensaries, and many general dispensaries are scattered throughout the city, their primary object being the succour of the poor, while some of them have the ulterior purpose of giving medical students that opportunity for practice which is a prominent part of their curriculum. Considering the number of students, it is not difficult to understand that the Edinburgh poor are well looked after medically; but we have it on good authority that it is a gross libel to say that poor women are attended in their confinements by as many as a dozen students, each of whom has one department allotted to him.

THE BOTANIC GARDENS.

The Edinburgh University has the peculiar honour of having done more than any other university in the kingdom to infuse the spirit of botanical research amongst medical graduates, especially those who have gone abroad as medical officers in the army. It was here that Darwin became a naturalist, here Cleghorn and Aitchison learnt their botany, and many another who has done good service to materia medica or pure botany. The subject was, and is, taught in the heart of the Botanic Gardens established by the University, but now the property of the Government, by whom they are maintained. The gardens are situated in Inverleith Row, and although not of the magnificent extent of Kew Gardens, they contain a fine collection of medicinal plants, and the facilities for study are exceedingly generous, to which fact is due the great popularity of the gardens with pharmaceutical students. An extensive arboretum is now attached to the gardens, and within its walls is the residence of the professor of botany, Dr. Isaac Bayley Balfour, who is the Regius keeper. Mr. Robert Lindsay, an accomplished practical botanist, is the Curator.

OZONINE is the name of a new solution which is successfully employed for bleaching fibres, wood, straw, cork, and paper. It is made in the following manner:—125 parts of resin are dissolved in 200 parts of oil of turpentine, and to this is added a solution of 25 parts of caustic potash in 40 parts of water and 90 parts of peroxide of hydrogen. The jelly obtained, on exposure to the light, changes in two or three days into a clear fluid, to which the name of ozonine has been given. A teaspoonful of it is added to a gallon of water for washing.

British Pharmaceutical Conference.

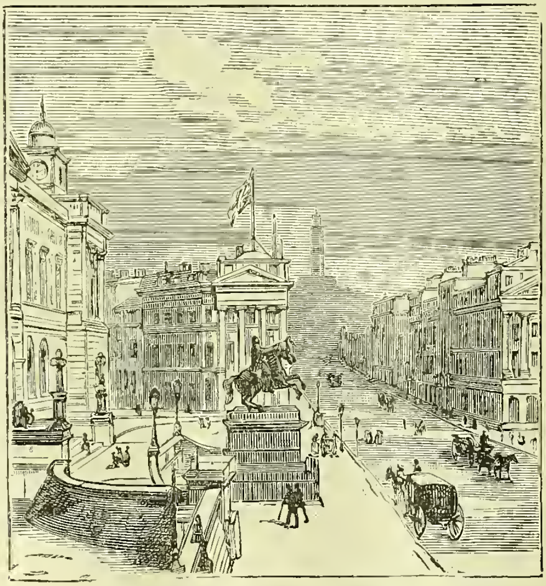
TWENTY-NINTH ANNUAL MEETING.

WATERLOO ROOMS, EDINBURGH, AUGUST 22 TO 24, 1892.

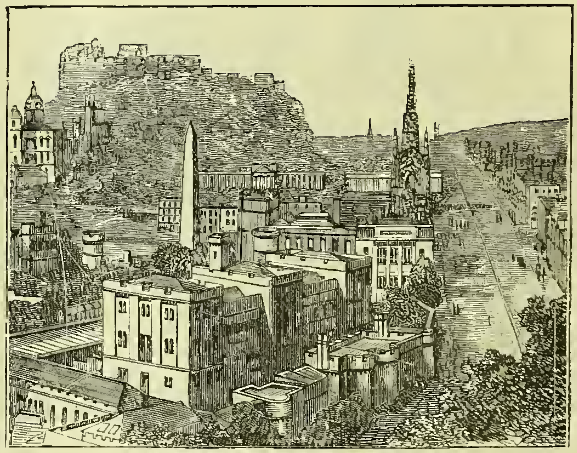
MR. EDWARD C. C. STANFORD, F.I.C., F.C.S., PRESIDENT.

THE RECEPTION.

THE Conference began well. On Monday night 280 ladie and gentlemen passed into the reception-room of the Waterloo Rooms, where Mr. Edward C. C. Stanford (President) and Mrs. Stanford, with Mr. J. Laidlaw Ewing and Mrs. Ewing, received them. It was a goodly company in which one could spot many a regular Conference man, and some who come to Scotland from the South every year managed to make the Conference fit in with their visit this year, which was good for the Conference and themselves as well. Those who had come from south of the Tweed looked a little like lost sheep for a while, but before 10 o'clock they had commenced to penetrate the mysteries of the Doric, and were making acquaintances which promised to bloom into something warm before the end of the week. The room (one of the finest of the old assembly-rooms wherein the gaiety of Edinburgh has had its outlet for a generation or two) had a brilliant appearance, and the music by Herr Daubmann's band was thoroughly appreciated. The vocal programme was short, and confined to songs by Miss Blaik and Mr. James Galloway, so excellently rendered as to necessitate encores All the arrangements appeared to be perfect, and we heard much satisfaction expressed thereanent, as they say locally.



WATERLOO PLACE. (FROM PRINCES STREET.)



LOOKING WEST FROM CALTON HILL.

The Waterloo Rooms were transformed by Tuesday morning into a comfortable meeting-hall with ample air-space, all of which was pretty sure to be wanted before the meeting was over, for the programme had lengthened on to appalling dimensions, and there was such an influx of men who could talk about most things that the whole week rather than two days seemed necessary to do justice to the lot. But first

"THE RIGHT HON. THE LORD PROVOST

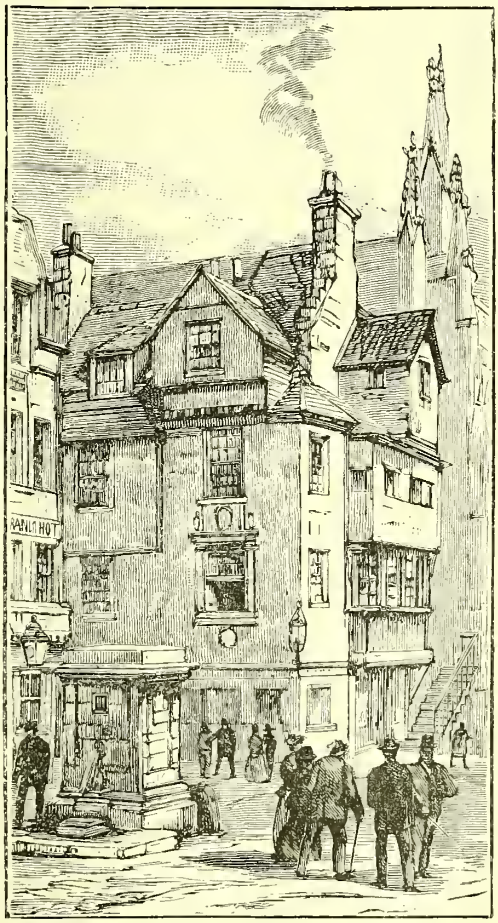
and the President," cried the Provost's man and the meeting gave the chief civic authority an upstanding reception. Mr. Stanford (the President) and the Lord Provost were accompanied by Messrs. J. Laidlaw Ewing, T. B. Groves, Richard Reynolds, and S. R. Atkins, who took seats on the left of the President's chair, and Messrs. W. A. H. Naylor (hon. secretary), R. H. Davies (hon. treasurer), F. Ransom (hon. secretary), W. Martindale, and A. W. Gerrard, who sat to the right. Dr. J. R. Russell, the Lord Provost, is a man of fifty or thereabouts, who looks more the student than the city magnate. In personal appearance he resembles somewhat strongly Mr. Holmes, the Pharmaceutical Society's curator. He speaks distinctly, and his medical knowledge enabled him to refer in sympathetic phrases to points in pharmacy which have from time to time caused some agitation, his references to weights and measures especially calling forth hearty applause. After the Lord Provost had been thanked for his speech of welcome he left the meeting to attend to civic duties, and again the members rose to their feelings. Business was then commenced in earnest.

OFFICIAL RECEPTION.

Mr. J. LAIDLAW EWING said: My Lord Provost, Mr. President, ladies and gentlemen,—It is my agreeable duty in the much-to-be-regretted absence of my friend and colleague Mr. Young, to introduce to you the Lord Provost of the city of Edinburgh, who has so kindly agreed to give us an official reception. I wish only to say that the presence of his Lordship here is singularly appropriate, for his Lordship is a member of the medical profession, and a member of the Royal College of Physicians in this city, which has done so much for, and is so honourably associated with, pharmacy. (Applause.)

The LORD PROVOST, who was received with applause, said: This summer we have had the honour and the pleasure of receiving a great many learned bodies, and it has been my lot on many of these occasions to speak words of welcome. But I think there is a peculiar fitness and pleasure for me upon this occasion, because, as you have heard, I am myself somewhat connected with this Conference, being a member of the medical profession, though not a practising member. We recently welcomed the British Association for the Advancement of Science, which deals with a great many branches of science—as a rule purely from the theoretical or scientific aspect—and when welcoming them I had to acknowledge, on behalf of the citizens of Edinburgh, that we were very grateful for the material advantages that pure science, when translated, has given us. Now I welcome you not merely as representatives of a branch of pure science, but as the representatives of an art and practice which has done so much for mankind and which is so honourably connected with this city. There is no town where medical science holds a higher position of honour, where a greater portion of citizens think so much of this distinction in connection therewith, and where this branch of medical science has conferred greater benefits, than on individual citizens of this town. It is, therefore, with very great pleasure that I welcome you. I know that your presence here is extremely grateful to the citizens, and that they recognise not only the good that you are doing for mankind but also what your art has done for this old town. We are deeply concerned with all branches of medical science here. It is a matter in which the inhabitants of this city have always taken a deep interest, and pharmacy has been taught here with great success. The improvements that are being made in the art and science of pharmacy are matters of congratulation to the public. We recognise the difference from the time when the medical art depended upon drugs of which very little was known, and we recognise gratefully to-day the results brought about by your labours, and where the crude materials are no longer used, but the active principles are extracted by the methods devised by you and employed with an accuracy and precision and knowledge which leave little to be desired. Nay, more than that, from the scientific side of your study you have often foretold the action of unknown substances, and then set forth to find those substances, or to complete, by a process of synthesis, from the lower parts of the scale. You have thus gone beyond the greatest dreams of our predecessors, and I have no doubt that by perseverance in the same course the next generation will have at their command powers and potentialities that we do not to-day feel able to anticipate to any extent at all. I welcome you here with the greatest pleasure, and I hope that something may be done at this Conference to advance the art. And now may I add in one word, speaking from my medical knowledge, that I hope that this Conference will not lose sight of one practical point—that is the introduction of decent weights and standards for use in our Pharmacopœia? (Applause.) Our state as regards weights and measures in this country at the present moment is a scandal to mankind, and I cannot forbear trespassing upon your patience by asking your help to get it redressed. (Applause.)

Mr. E. C. C. STANFORD said: Allow me, on behalf of the British Pharmaceutical Conference, to thank your Lordship for the very kind words in which you have bidden us welcome to this beautiful city. It is twenty-one years since this Conference met in Edinburgh, and long as the time is there are some of us who were present on that occasion who have not yet had time to forget the kindness and hospitality we met with here. (Hear, hear.) We miss some kind faces, but we know that men may come and men may go, but the hospitality of Edinburgh can always be depended on. I wish personally to thank your Lordship for your kindness in coming here. We are all well aware that the chief magistrate of this great city holds an office which is no sinecure—that his time and attention are very closely occupied and taken up—and I feel personally thankful to his Lordship that he should have found the time and given us the attention of coming here to-day. (Hear, hear.) But we recognise in his Lordship not only the chief magistrate of this great city, but also one of the foremost in that higher rank of medicine of which we constitute the lower



JOHN KNOX'S HOUSE.

"The house which projects into the street, at the place where it is suddenly contracted, may be considered an object of no little curiosity as having been the residence of the celebrated John Knox. It was granted to him free of rent by the magistrates, short while after the Reformation, when he officiated as a preacher in the church of St. Giles; and he is said to have occasionally, by way of supererogatory duty, held forth to the people in the street from a projecting window."—*Robert Chambers.*

part; and we are glad to know that, in this city at any rate, medicine and pharmacy have never clashed. They have gone on hand in hand together, they have fought, shoulder to shoulder against a common foe, and it is on that account that medicine and pharmacy, the two battalions, have won so many victories in this city. (Hear, hear.) I would fain express a hope that this meeting may add to, increase, and strengthen that bond of union, and I am quite sure I can promise his Lordship that all his expectations will be fulfilled, and that this city will be ever known more and more and wider and wider as one of the greatest centres of medical and pharmaceutical education. I am not sure that I am able to promise him that we can bring in the metric system, but all those who have studied the subject will agree with his Lordship that it is very much required. We must remember that we cannot trespass too long upon his Lordship's time, and I shall now only ask you to accord a very hearty vote of thanks by acclamation to his Lordship for coming here to meet us to-day. (Loud applause.)

The **Lord Provost** said he was very grateful for their vote of thanks. It gave him very great pleasure and he esteemed the honour very much to be with them. He then invited those who were interested in matters of history and antiquity to visit the city chambers and inspect what they had of interest to the historian and antiquarian, and where they would be very welcome. (Applause.) The Lord Provost then left the Conference-room.

DELEGATES.

The following delegates were then accorded a formal welcome:—

Pharmaceutical Society of Great Britain.—Messrs. W. Gowen Cross (Vice-President), L. R. Atkins, Grose, Harrison, Hills, Johnston, Leigh, Martin, Martindale, Newsholme, Southall, Storrar, and Richard Bremridge.

North British Branch.—Messrs. J. L. Ewing, T. Maben, J. B. Stephenson, and J. Rutherford Hill.

Edinburgh Chemists, Assistants, and Apprentices Association.—Messrs. J. Lothian, W. B. Cowie, and A. J. Dey.

Pharmaceutical Society of Ireland.—Messrs. S. D. Beggs, W. F. Wells, and C. C. Payne.

Dundee Chemists' Association.—Messrs. C. Kerr, J. Russell, A. B. Anderson, and W. Park.

Sunderland Chemists' Association.—Messrs. J. Harrison, R. Robinson, and T. Nasbett.

North of England Pharmaceutical Association.—Messrs. N. H. Martin, C. B. Ford, T. Rhuder, and J. Harrison.

Midland Counties Chemists' Association.—Messrs. Hutton, W. Jones, A. Southall, and J. Barclay.

Aberdeen and North of Scotland Chemists' and Druggists Society.—Messrs. G. E. Broomhead, J. Johnston, J. Paterson D. Ritchie, and A. Strachan.

Chemists' Assistants' Association (London). — Messrs. Rogers, Williams, Strother, Stead, and Parry.

Sheffield Pharmaceutical and Chemical Society.—Messrs. A. H. Allen, J. M. Furness, and W. Ward.

Manchester Chemists' Association.—Mr. Louis Siebold.

Liverpool Chemists' Association.—Messrs. A. C. Abraham, J. Bain, M. Conroy, J. Smith, C. Symes, J. S. Ward, W. Wellings, and A. S. Buck.

Leicester Chemists' Association.—Mr. Burford.

Nottingham and Notts Chemists' Association.—Messrs. Bolton and Hill.

APOLOGIES

were received from Mr. Charles Umney (who regretted, as one of Mr. Stanford's first pupils, that he could not be present); Mr. Savage, of Brighton; Dr. Symes, Mr. Bell (Hull); Mr. J. R Young (Edinburgh); Mr. Schacht, of Bristol; Mr. Druce, of Oxford; and Mr. Daniel Frazer, of Glasgow.

REPORT OF THE EXECUTIVE COMMITTEE.

In presenting the twenty-ninth annual report your Committee feels a measure of disappointment arising from their inability to record an increase in the membership of the Conference. The special efforts which have been made during the last few years to obtain new members have not met with the success that was anticipated. In order to maintain its position as a representative organisation of all who are connected with pharmacy it is necessary that members severally and generally should avail themselves of suitable opportunities of making known to eligible outsiders the advantages to be derived from the Association. At the meeting held last night sixty were elected to membership.

The question whether it is desirable to continue to meet in the same town, and at about the same time, as the British Association is to be discussed at this meeting. On the present occasion it was found impracticable to meet as usual immediately preceding the British Association, owing to the very early date chosen by the latter.

In February last, at the invitation of the Council of the Pharmaceutical Society of Great Britain, a meeting was held, at which delegates from your Committee met representatives appointed by the Council of the Society, to discuss the suggestion that the Society should hold annual meetings at provincial centres, and to consider the probable effect that such meetings would have upon the Conference. At a subsequent meeting of your Committee it was reported that there appeared no promise that a further consideration of the matter would be likely to lead to any advantageous issue, and the subject may therefore, for the present at least, be considered to be closed.

The Conference has suffered a severe loss by the death of Emeritus Professor Redwood, which occurred in March of the present year. The help and advice received from Dr. Redwood in the early days of the Conference were of the highest value, and his continued interest was shown by his active participation in the meeting held last year at Cardiff. He occupied the position of President of the Conference in 1876 and 1877. His distinguished ability and long experience in all subjects relating to pharmacy gave him an authority in these matters which was recognised and appreciated throughout the world.

The Conference has also to deplore the loss by death of Mr. Thomas Hyde Hills, a former vice-president of the Conference. He was ever ready to promote the welfare of pharmacy in all its branches, and an evidence of his liberality remains in the Bell and Hills Fund, which annually provides for a presentation of books to the town visited by the Conference.

A second grant of 5*l.* in aid of research has been made to Mr. R. A. Cripps, who is continuing his investigations on ipecacuanha.

Mr. Louis Siebold, F.I.C, F.C.S., was last year reappointed editor of the "Year Book," and the MS. of Parts I. to IV. inclusive is now in the hands of the printers. Arrangements have been made which will, it is hoped, ensure the earlier publication of this volume.

The reception held last night by the President, and the *conversazione* which followed, were well attended, and proved as entertaining and attractive as any that have preceded them.

This report was read by Mr. **Ransom** and, following him, Mr. R. H. **Davies** read the

TREASURER'S REPORT,

which showed that the income for the year consisted of 458*l.* 14*s.* 3*d.* from members' subscriptions, 102*l.* from the "Year-book," and 21*l.* 5*s.* 6*d.* from the sale of the Unofficial Formulary, balances from last year bringing the whole up to 777*l.* 16*s.* 7*d.* Expenditure included: 493*l.* 11*s.* 9*d.* on account of the "Year-book," 20*l.* 0*s.* 7*d.* for the Unofficial Formulary, 65*l.* 11*s* 9*d.* for secretarial and other expenses; printing, postage, &c., 30*l.* 16*s.*; and the balance was 30*l.* less than the year commenced with. The Conference has 360*l.* in Consols on the Bell and Hills fund account. Mr. Davies regretted that there had been fewer members last year, 18*l.* less having been received from that source, but the number elected on the previous night would put them all right on that score.

Mr. **Thomas Thompson** (Edinburgh), who with Mr. D. Anthony, of Cardiff, had audited the accounts, testified to their accuracy.

The way was now clear for the President's address, and on rising Mr. Stanford was received with applause.

THE PRESIDENT'S ADDRESS.

Ladies and Gentlemen,—I have, in the first instance, to thank the Conference for the kind expression of confidence in electing me at Cardiff, in my absence, to the honourable position of President. When your committee first selected me I declined the honour, deeming it impossible that an outsider like myself could do justice to the cause, and that a brilliant flash of silence would suit me best. My friends in the committee would, however, take no denial, pointing out that I should only follow some former Presidents who also were not personally employed in the practice of pharmacy.

Moreover, as one of the founders of the Conference, present at the first meeting at Newcastle in 1863, and assisting at its birth, it was my duty to do anything and everything in my power to promote its best interests.

That duty I fully recognise and accept as a very pleasant one, hoping to follow—though a long way after—the eminent outsiders who have preceded me in this chair. I trust that all shortcomings may be made up by your kind assistance. It is said that outsiders often see the best of the game, and I shall claim the privilege of a sympathetic looker-on, and, perhaps, even dare to criticise some of the moves. It may also be interesting to "see oorsells as ithers see us," although it is said we do not often want to repeat the experience. I represent a part of that great public which has already profited so largely by the growth of pharmacy and the increased education of pharmacists, and which has placed a great trust in your hands, and is waiting and watching to see how you keep it. A roving commission and a rambling statement must be allowed me—that of a "chiel amang ye takin' notes," a position which would make me rather nervous were it not for the very excellent unwritten rule that this meeting does not criticise the President's address, except favourably—and you have placed me in the chair to see that your rules are properly respected.

Yours truly
Edw. C. C. Stanford

First Meeting.

The memory of that little inaugural meeting, held in a small room at Newcastle in 1863—the year I came to Scotland—supplies me at once with a suitable text. Twenty-one pharmacists, who attended the British Association there, met together and founded the British Pharmaceutical Conference. Twenty-nine years have passed away, and each year has added to its progress. In 1871, when the Conference met last in Edinburgh, it was eight years old, and even then had arrived at years of discretion.

I congratulate the members that they are again invited to this beautiful city, and receive another hearty welcome to modern Athens; and those of us who were present on the last occasion know well what that means. We who nursed this bantling in its infant stage could scarcely have expected that it would have grown so rapidly, and so great, and that the Year-book of Transactions should be looked forward to as an indispensable record of the world's progress in pharmacy. Indeed, so proud may we be of our offspring that I thank our friend Reynolds for his timely hint about "garrulous old nurses."

I think it may be worth our while to pause for a moment, and look back to our birth-year, and see what the interval has done for us, and for our country at large—embracing, as the period does, the latter, the greater, and the better half of the Victorian era. What progress has the world around us made in science, in manufactures, in education; and has our pharmacy kept pace with the general advancement? Can we put down our Ebenezer here, and thank God and take courage as we look forward to greater possibilities?

Losses.

Looking back has its elements of regret; our attention is at once riveted on the serious gaps made in our ranks by the hand of Death—those eminent men, those dear friends, who have joined the majority, "where beyond these voices there is peace." Who can fill the vacant spaces where Deane and Brady stood at our first meeting? The first volume of the Transactions contains a paper by Deane on the opium alkaloids, with microscopic illustrations, beautifully drawn by Brady, whose monograph on the *Challenger* foraminifera will alone hand down his name to posterity. We have lost the world-renowned Hanbury, who presided in 1867 and 1868 at Norwich and Exeter; Stoddart, who presided in 1870 and 1871 at Liverpool and Edinburgh; Williams, who presided in 1884 at Hastings; and last, and greatest of all, Redwood, who presided in 1876 and 1877 at Glasgow and Plymouth. Since our last meeting our generous friend Hills has passed away. We have also lost our dear friend John Mackay—who was secretary when we last met here—whose genial presence we miss so much, and whose loss to pharmacy in Scotland is irreparable. One quality was specially notable in all: they were such lovable men—men with a halo around them, shedding light and love on all who came within their benign influence; men abounding in an enthusiasm which was wonderfully catching, and went far to secure the great success which has always attended the meetings of this Conference.

Redwood.

The lamented death of Professor Redwood, the Nestor of British pharmacy, is so recent that we have not yet got over it. He was long spared to us, with his wonderful talents and his great vitality preserved to the last, even to our own last meeting at Cardiff, in his native Glamorganshire; but soon after there was a noise amongst us as "when a standard-bearer fainteth," and we can scarcely yet realise that our great champion has retired from the field. No one knows the inner character of a professor better than his assistant, and having for some time held that happy and intimate association, I wish to record that a warmer friend and a more lovable and unselfish man I never knew. In the present position of British pharmacy he has left us a noble legacy, and his name is commemorated by the Redwood scholarship now connected with the Research Laboratory, but many of us "will long for the touch of a vanished hand, and the sound of a voice that is still."

The British Pharmaceutical Conference is an organisation for the encouragement of pharmaceutical research and the promotion of friendly intercourse among pharmacists. Has it fulfilled these promises? The goodly volumes of Proceedings already published, of which twenty volumes have been issued since last we met here, supplies the answer to the first. The subjects treated are so extensive that it was necessary to supply a general index to the first sixteen volumes and another will soon be required, while the fact that we are meeting for the second time in this city, and for the fifth time in Scotland, where all the meetings have been specially successful, at least shows that even in pharmacy many have run to and fro, and knowledge has been increased.

We again shake hands across the border, and our southern friends will find once more that there is plenty to see and admire in the "knuckle-end of Great Britain"—the "land of the mountain and the flood." But this Conference has not only brought together British pharmacists—it has brought us in close connection with distinguished pharmacists abroad of every nationality. It has given us a respect and esteem for one another, and by the excellent researches published in the Year-book, has raised the tone of British pharmacy wherever our language is spoken throughout the world. In the blue list, carefully prepared and annually circulated, attention is called to many subjects deemed worthy of investigation, and where our present knowledge is imperfect. I claim for the British Pharmaceutical Conference that it has amply fulfilled all its promises.

Progress.

I shall not attempt to enumerate the special advances made in pharmacy during the past year—that would be anticipating the admirable summary of the editor of the Year-book, nor shall I follow my accomplished predecessor in speaking of new remedies, but only remark that no physician or pharmacist can afford to order a suit of clothes without a pocket specially made to contain the last edition of Martindale's "Extra Pharmacopœia."

National Progress.

I prefer to select a few subjects which may give us an idea of progress during the lifetime of this Conference. During this period the trade of the country, as shown by the imports and exports, has nearly doubled. The parcel-post, the sixpenny telegram, the telephone, the phonograph, the microphone, and the type-writer (unfortunately not yet used for prescriptions, though, perhaps, it would save more time in that than anything) have all been added since our birth-year; we had few ocean telegraphs then, and the first Atlantic cable was still lying useless at the bottom of the ocean, where now there are seven lines in constant use. The telegrams have risen from 10,000,000 to 69,000,000, the letters from 617,000,000 to 1,767,000,000, the savings-banks from 44,000,000*l*. to 108,000,000*l*., the shipping from 24,000,000 tons to 38,000,000 tons, and the applications for patents from 3,309 to 21,308. The tramways are all of our period: they extend to over 1,000 miles, with a capital of 14,000,000*l*. The cable tramway in this city is a late development. The railway capital has increased from 474,000,000*l*. to 1,004,000,000*l*., and the passengers from 204,000,000 to 817,000,000; but the number killed has fallen from 1 in 5,000,000 to 1 in 53,000,000. This immunity from accident is due to inventions of our period, to the steel rail, the fish-joint, the block system, and the continuous break; and as thirty times as many are said to be killed in the streets of London, our Metropolitan visitors, when they come here in the luxurious carriages of our "Flying Scotchman," may feel that they are escaping from danger to safety. Our great railways have only deteriorated in one respect—they do not now give us the privilege of travelling to these national gatherings and back at a single fare. In the good old times when the present reign commenced, the fast coach from London took 45½ hours; now messengers on bicycles could easily beat this record. Truly the present times are the oldest and the best. Our great ocean steamships present another instance of greater efficiency and higher speed, producing also greater safety to travellers. The tubular boiler, the twin screws, the surface condenser and the triple-expansion engine, all inventions within our period, have raised the speed from 14 knots an hour to above 20, the boiler-pressure from 25 lbs. to 150 lbs., the horse-power from 3,000 to 20,000, while the consumption of coal has fallen from 3½ lbs. per i.h.p. to 1½ lb., and the weight of the machinery per h.p. is reduced to less than half; and these improvements have only made the Atlantic greyhounds "patent safeties," for the cabin is the safest place in the world. Those of our friends who go on to the West Highlands to see "Caledonia stern and wild" will find steamers where every luxury can be obtained, very different from those I remember.

Gas.

We then knew gas only as our chief means of illumination, and it is but recently that we have learned how to secure a maximum of light by improved burners. In this, the centenary year of its discovery by Murdoch in Ayrshire, it is humiliating to know that most of it is still wasted in this way. We now look upon gas as an important source of heat. It is especially valuable in pharmacy and in cooking. In some of our largest manufactories of glass and steel the firing is entirely done by producer-gas in connection with the Siemens regenerative furnace. There is yet great room for development in the supply of a separate cheap gas entirely for firing purposes, and the use of petroleum-oil gas for illumination. We have also the most efficient of all motive power in the gas-engine, now available up to 300 h.p. We have lived to see gas spontaneously rising with a pressure of 400 lbs. on the inch from bore-holes, and utilised for heating and lighting in Pittsburgh to the extent of 10,000,000 cubic feet a day. Gas would be of little use without matches, and as these are said to be the measure of civilisation, we may be reminded that they were invented by a druggist in 1827—John Walker, of Stockton—and that he sold them in boxes of fifty for a shilling, and now our country alone turns out 300,000,000 every day, and the world's annual production is estimated at 21,000,000*l*.

Electricity.

Electricity is rapidly becoming our servant-of-all-work. It promises soon to be our principal light; it supplies the motive power for railways, tramways, vessels, and an innumerable variety of smaller motors. It is used for cooking, for electro-plating, for reduction of metals, for welding iron and tempering steel, for working coal-mines instead of compressed air, down to Edison's method of killing cockroaches and caterpillars by electrocution. And now it is supplied by metre and measured as easily as gas—in fact, in the United States a customer was fined $5,000 for stealing it—a new fraud not easy to commit everywhere. The incandescent light is inseparably associated with the name of Swan, one of ourselves. Water-power is largely used for generating electricity: even a portion of Niagara Falls is to be utilised. According to Siemens it is equal to 4,500,000 h.p., which represents all the steam-power in the world. The Schaffhausen falls on the Rhine are utilised to generate electricity used in the reduction of aluminium, and the falls of Tivoli light 40,000 lamps eighteen miles away.

Steam.

Four-fifths of the world's steam-engines have been made during our period, and the demand is greater than ever, and the consumption of coal goes on ever increasing, and our stock must be some day exhausted; even in fifty years it may become scarce. Then we must look for other sources of power. The waves, the tides, the rivers (the Mersey alone is estimated at 100,000 h.p.), the heat of the sun, may all have to be pressed into our service.

Hygiene.

The important science of hygiene has grown up during our period, and we now know that cleanliness is not next to, but a part of, godliness—that the dirty saints of the Middle Ages were unsafe, and that the Mosaic law was as good for health as for morals. Most of the mysterious visitations which used to be called dispensations of Providence we now know to be simply preventible deaths arising from our own neglect. The origin and development of many fatal diseases then unsuspected are known now. The whole treatment of disease has therefor changed. An accomplished nurse is as necessary now as a good physician. Nursing, then left in the hands of a low class of ignorant servants, is now engaged in by some of the noblest, best-educated and most devoted women in the land. The Ambulance Associations are all of our period, and it is now rare for any accident to occur without someone being present who is able to render "first aid," that important service which has saved so many limbs and lives. The medical officers of health for Edinburgh and for Glasgow were both appointed in our birth-year, but the Public Health (Scotland) Act was not passed till 1867. These officers soon showed good cause for their appointment. At that time the upright streets, as Sir E. Chadwick called the tall tenements of the older parts of the city, were subject to periodic outbreaks of fever. The death-rate was over 26 per thousand, the last decade it was only 17·5, a saving of 9 lives per thousand. Glasgow was still more remarkable, because there was more to do. The death-rate was over 30 per thousand, of which the chief zymotic diseases were 6·5. In the next decade the death-rate was reduced to 28, and the chief zymotic diseases to 4·3. In the last decade the death-rate was still further reduced to 24, and the chief zymotic diseases to 3·1, or less than half. The saving of six lives in a thousand amounts, on the present population of greater Glasgow, to 4,048 lives annually saved. The sanitary department costs 45,721*l*. per annum, besides the cost of the cleansing department, which is above 100,000*l*. more, all well spent in the noble service of fighting disease and death. The fourth and last attack of cholera occurred in 1866 and caused 53 deaths, as compared with 3,885 deaths in 1853. The authorities do not dread this terrible epidemic now. No new house is allowed to be occupied unless the drains have been smoke-tested and found perfect, and the Glasgow Police Act is extremely stringent. In 1849, 14,000 deaths from cholera were traced to the drinking of impure water. Only last month Pasteur called attention to the great danger arising in Paris from the use of ice from impure water. Glasgow owes much of its safety to Loch Katrine water, obtained at a cost of 3,300,000*l*. Liverpool has just obtained a pure supply from Wales at a cost of 4,000,000*l*, and now we hear of Birmingham contemplating an expenditure of over 6,000,000*l* for the same wise purpose. Perhaps we may hear next of the great metropolis taking its water-supply in hand. It was estimated that during the fair week over 3,000 hot baths were given in the five public baths in Glasgow, and yet our public baths and water-supply are nothing to those of ancient Rome. There is much to be done yet, as 125,000 lives are still annually sacrificed to preventible disease in this country, and Sir Jos. Fayrer estimates the loss of labour alone at 7,750,000*l*.

CHEMISTRY.

We have seen chemistry, a science founded on the balance and the weights of atoms and molecules, leaving our earth altogether, and analysing the atmosphere of the sun and other stars, and even assisting in determining their size, distance, and velocity. Our notation has entirely changed, and those who attended our first Conference have had to relearn their atomic weights and combining equivalents, and if the names of the endless new organic compounds continue to increase in length, we may have to study a new alphabet. We do not yet know the elements as multiples of hydrogen, but much has been done to cast more than a doubt on their simple character; and it is probable that some, at least, may be dissociated into simpler forms.

PHOTOGRAPHY.

From the invention of the instantaneous gelatine plate, photography has undergone a revolution, and has become an almost universal national toy, and the sales of apparatus and chemicals must be enormous. In the manufacture of albuminised paper, three factories in the United States are said to use 3,000,000 eggs per annum. It has attained a marvellous development in astronomy, and natural colours are in sight at last. Professor Boys showed here that a photograph could be obtained in a ten-millionth part of a second.

MICROBES.

The greatness of little things has been very forcibly brought home to us in the discovery of the micro-organisms or bacteria, and the large and important part these minute bodies play in our daily life. It is well our eyes are not microscopes, and we cannot see these organisms, and what they feed on in the air: the outlook would be too dreadful. But we are not allowed to forget the omnipresence of an atmosphere with all its impurities. Some of our largest manufactures—bread, wine, beer, spirit, and vinegar—are all the products of various bacteria inducing fermentation. The effects, at least, have been known from the Deluge: we are not told how many of each kind Noah took into the Ark with him, but they were certainly present when he landed, or his grape juice would not have affected him so powerfully.

MANUFACTURES.

I can only select one or two of the larger chemical manufactures to illustrate progress, and such as are allied to pharmacy. Sodium carbonate and bicarbonate have developed into that enormous manufacture known as the alkali-trade, which during our period has attained great development. In the early part of this century sodium carbonate was made from kelp, and I calculate that it must have cost at least 100*l*. per ton from that source. It is a singular fact that the new process for making soda ash, known as "the ammonia-soda process," was first introduced for the manufacture of sodium bicarbonate for use in pharmacy. It is a simple method of decomposing sodium chloride with ammonium bicarbonate. It was patented by Dyer and Hemming in 1838. A company was formed to work the process in London, but it failed entirely: the decomposition was not perfect—there was great loss of ammonia, and the cost of ammonia salts was too great at that time.

SODA.

Many other similar patents were taken out, but the first practical result was obtained by Solvay, who exhibited sodium carbonate made by this process in the Paris Exhibition of 1867. In 1889 Solvay & Co., in their various works abroad, made 400,000 tons, equal to half the world's consumption. Meantime, Brunner, Mond & Co. had established most successful works at Northwich, where they have a brine-well, which is necessary to this process, and other works are being erected. According to the Alkali Report of last year, 278,528 tons of salt were decomposed by this process, against 567,863 tons decomposed by the Le Blanc process. In the ammonia-soda process the soda is first produced as a bicarbonate, and the soda ash is obtained from this by roasting; thus a small pharmaceutical product has developed into an immense industry. This result is almost entirely due to a new science—that of chemical engineering, which is a growth of our period: it enables us to overcome the great practical difficulties in the erection of chemical-plant on a large scale. It is to this science we owe the filter-press, the hydro-extractor, the vacuum pan, the multiple evaporator, better disintegrators, and many others, which have aided manufacturing chemistry and pharmacy. Thus the old Le Blanc process, which has held its own all this century, has now a formidable rival, by which soda ash is made much cheaper, and is only able to hold its own because it is still practically the only source of hydrochloric acid, which since the passing of the Alkali Act—also in our birth-year—has all been collected. In the ammonia-soda process the whole of the chlorine is run away as calcium chloride, whereas in the Le Blanc process half of the chlorine is obtained in the form of bleaching-powder—now 140,000 tons per annum, which at the beginning of this century realised 112*l*. per ton. The other half of the chlorine is still wasted.

SULPHUR.

Another great drawback to this process was the large and offensive outcome of alkali-waste, containing the whole of the sulphur from the vitriol employed to decompose the salt. In Widnes alone there is a deposit of 10,000,000 tons, covering 500 acres of ground, the drainage from which is most offensive. This deposit will now cease, for by the "Chance process" the sulphur is recovered in a very pure form, and the waste is rendered innocuous. Forty-five thousand tons were produced from this new source last year, and it is rapidly increasing. Brimstone-and-treacle is not the fashionable medicine it used to be, and it never belonged to elegant pharmacy, but should the taste for it be revived, it is well to know that a sufficient quantity can be produced at home.

Sulphate of Ammonia.

Closely connected with the ammonia-soda process, and affording the basis of several important medicines, is the manufacture of ammonium sulphate, and it has attained large proportions, especially in Scotland. At one time urine was almost the only source (ammonium bicarbonate was made not long ago from the urinals of Glasgow), then gas-liquor, from which the greater part of the 143,606 tons made last year in this country was obtained : 26,000 tons of it were obtained by the distillation of Scotch shale, and 6,290 tons from a new source—the waste gases of the Scotch blast-furnaces. Fifty-seven of these furnaces, which used to flame and flare all day and light up the nights, and were generally known as "blazes," have been tapped at an expense of 444,600*l*., and the tar and ammonia condensed; and in some of these the products pay better than the iron. What chemical engineering is required here may be estimated by the fact that in one work alone 100,000,000 cubic feet of nearly red-hot gases are dealt with every day.

Shale Oil.

This great Scotch industry is entirely the growth of our period; in it shales, formerly useless, are converted into paraffin, lubricating and burning oils, and ammonia. Two and a half millions of capital are employed in this trade, and over 55,000,000 gallons of crude oil were distilled last year from 2,311,592 tons of shale. Its development has required the highest talent, and is a triumph of chemical engineering. The devising of refrigerating machinery for compressing the gases and condensing the volatile hydrocarbons led Coleman, who was trained in pharmacy, to the discovery of the celebrated Bell-Coleman refrigerator, one of the greatest successes of the present century. From it arose that enormous importation of dead meat from abroad, which last year amounted to 3,323,821 carcases of frozen mutton alone, all of which were brought through the tropics and landed in perfect condition.

Petroleum.

This shale industry has now a still more gigantic competitor—the petroleum of America, Russia, and many other parts of the world. The production in 1889 was 75,000,000 barrels, or 10,000,000 tons, of which the United States produced 45,000,000 barrels and Russia 25,000,000 barrels. It is estimated that there are 10,000,000 paraffin or petroleum lamps used in this country alone, and the poorest cottage in the kingdom has a cheap and efficient light. An excellent petroleum-gas engine has been introduced, and is highly spoken of as a motor. This petroleum will probably be much more used as a fuel, as it has been solidified, and also as a means of enriching coal-gas. We are specially interested in knowing the name of Redwood as the best authority on this subject.

Natural Products.

Many of our chemical manufactures have been superseded by the discovery of natural products. The mines of Stassfurt now furnish the bulk of our potash salts and of our bromine, which is found also in a natural deposit in America. Large salinas, or beds of pure salt, have been found in the Argentine; borates in California, sodium sulphate at Wyoming; and the arid mountains of Chili produced last year 945,000 tons of nitrate of soda and much iodine.

Colours.

The chemistry of the coal-tar colours was then in its infancy; we now see every shade of colour from this prolific source. From anthracene, discovered by Dr. Anderson, of Glasgow University, alizarine has been produced in such quantity as to entirely supersede the madder-plant and free for growing corn the many acres of land then required for its cultivation. Indigo has also been produced artificially, though not yet so cheaply as to supersede that from cultivation.

Pharmacy has profited largely by the constant researches into this mine of chemical wealth. Its products appeal to all our senses. Our sight is gratified by the beautiful colours, our taste by the sweetness of saccharin, our smell by the odour of artificial musk; we can feel the sting of carbolic acid, and our hearing is satiated, even tired, by the endless long names it has given to us.

Quinine.

The object of the research which led Perkin to the discovery of mauve, the first of the tar colours—that of artificial quinine—is not yet accomplished, except from cupreine, for which a German patent has been obained. But is it not highly probable that it may yet crown the magnificent edifice raised on a basis of tar—that sometimes troublesome substance which long ago led to Bishop Berkeley's speculation on matter, and which he recommended as a cure for all diseases? It was prophetic: could he possibly have foreseen such antiseptics as carbolic, cresylic, and salicylic acids, or such febrifuges and anodynes as salicin, antipyrin, antifeorin, and phenacetin? The history of tar-products should form a good sign-post to all young researchers who deal with unpromising materials, and who may be sure that perseverance will find the reward that invariably results from all patient labour. It is painful to reflect that the bulk of these manufactures of the finer chemicals is in the hands of German chemists, who are still ahead in the education necessary for this work. Our nation, however, has often well fought a losing battle, and converted it into a victory, and let us hope we may do this yet.

Education.

In nothing has our progress been more marked than in education. We had then no Board schools, no free libraries, and less than half the children in London attended school. Now there are 2,590 Board schools in Scotland alone, and the expenditure last year was 1,651,490*l*.; of this amount about one-fifth is expended in the cities of Edinburgh and Glasgow, and these cities possess schools which are equal to any in Europe. We may hope that there will be no illiterates in the next generation. The School Act of Scotland is more extensive than that in England, empowering the Boards to teach everything, and Board schools are almost universal here. In fact, for nearly two hundred years Scotland in her parochial-school system has had a State education. Macaulay says that "Scotland was then the rudest and poorest country that could lay any claim to civilisation. The very name of Scotchman was then alluded to with contempt. Fletcher, of Saltoun, said that nothing but the lash and the stocks could reclaim the vagabonds who infested every part of Scotland, and recommended that course in a pamphlet. A very different course was adopted. The Parliament which sat in Edinburgh [we were then under Home Rule] passed an Act for the establishment of parochial schools. What followed? An improvement such as the world has never seen took place in the moral and intellectual character of the people, and the Scotchman of the eighteenth century was an object not of scorn but of envy, because the State had given him an education."[*] We know how many great Scotchmen these schools have distributed to leave their mark all over the world. Now the whole country has a State education, and Wordsworth's prophetic lines are fulfilled—

> Oh, for the coming of that glorious time
> When, prizing knowledge as her noblest wealth
> And best protection, this imperial realm,
> While she exacts allegiance, shall admit
> An obligation on her part to *teach*
> Those who are born to serve her and obey.

But we have yet much to do in secondary, technical, and university education. Great Britain has only nine universities. Of these the London University is little more than an examining body, and all must look forward to the time when the greatest city in the world will have a real teaching university worthy of it.

With a less population than London, we have four of these universities, and although capable of some reforms and extension, Scotland has reason to be proud of her colleges. In Glasgow we have the largest school of technical education in the kingdom, with 2,800 students, so that although England is rapidly overtaking us, so far, in free, cheap, universal, unsectarian education, it is "Scotland yet."

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[*] Macaulay's speech on Education, 1844.

But Germany has twenty-three universities, and when she acquired the city of Strassburg she immediately fortified it, not only by guns on the outside, but by building a splendid university within the walls. Now we have handed over Heligoland, she at once sets to work with a biological department to inquire into deep-sea fisheries. We are at last moving in this department, and perhaps it is time, after fishing for so many centuries, for our fishermen to learn something about the habits of fish. Even our plumbers must now be educated, examined, and registered, seeing that they can become efficient distributors of poison without our knowing it. The growth of free libraries, under the Library Act, is well seen here by the splendid Free Library. We have two fine free libraries in Glasgow, due to private benevolence; but we want several more, and we have not yet induced our citizens to adopt the Act, small as the necessary assessment is.

The formation of the large Society of Chemical Industry, with its splendid Journal, for applied chemistry, the Institute of Chemistry, for professional examination, and the Society of Analysts, all in our period, all show the great progress and the many special directions in which education in chemistry is extending. Organic chemistry requires much more extensive teaching and many more teachers than we have at present, and we must look for a great increase and, perhaps, several divisions in this branch of education.

Pharmaceutical Education.

Have we, then, kept pace with this universal run for knowledge going on around us? To a great extent we have. There are now Pharmaceutical Associations in South Australia, Queensland, Tasmania, New Zealand, South Africa, and Otago. But it is complained that many young men who try to pass the examination of the Pharmaceutical Society in London have not been properly educated at school. Dr. Stevenson, the Government visitor, says about the Preliminary examination: "It is evident that many young men of defective education still unsuccessfully attempt to enter upon the business of pharmacy, most of them failing in simple arithmetic." I am glad to hear that the attempt *is* unsuccessful; it is unfair to put any uneducated youth into pharmacy—unfair to himself because he is entering a business the professional part of which requires the highest education, and unfair to pharmacy because he lowers the tone of what ought to be a scientific profession. Of the Minor examination Dr. Stevenson says: "The ill-effects of attempts to acquire knowledge haphazard and without systematic teaching are painfully apparent." The same remarks apply to the examinations here, but the percentage of failures is much less.

Now, this is nothing more or less than "cram"—that hideous spectre which haunts all examinations, and makes us wish to find some better substitute for testing knowledge. When will our young men learn that, even if they pass such knowledge can never be of any use to them? But that is not the worst, it is no use to their fellow-men, which is much more important. Knowledge crammed for an examination is of no more value to the mind than undigested food is to the body—it imparts weakness, not strength. It is like a Latin lesson which an idle boy learns to escape the cane or the tawse, and when the ordeal is over he speedily forgets both. Dr. Stevenson, however, adds that "the capabilities of the candidates will be better tested by the new examination," and I hope his expectations will be fulfilled.

I am surprised occasionally to hear some talk of over-education in pharmacy, especially in Scotland, the country that owes her great position entirely to education. I notice those who talk so freely about over-education do not suffer severely from that complaint themselves. If a pharmacist can be over-educated he occupies a perfectly unique position, unapproached by other men. We often hear of over-educating the people: I consider that impossible. It is well known to school inspectors here, where the children are fairly intelligent, that the clever ones do not number more than 4 to 5 per cent. at the outside, and these only *can* be over-educated. As to the others the great difficulty is to educate them at all. I speak as the chairman of a School Board which possesses one of the largest schools in the kingdom. The artisan of to-day knows more than the middle class did in the last generation; and I hold that the Pharmaceutical Society have always been right in giving the first place to education, for that, and that alone, will elevate pharmacy. It is the only means yet discovered that is always sure to help people to help themselves, and it must begin early. "The time to get ready a ship for the storm is not when the hurricane is on, but when the planks are being picked and the bolts driven home in the dockyard. Build a boy of sound timber and he will weather most things." *

Pharmacy.

But some think there is no inducement in the present and future of the pharmacist to repay liberal education. I have no doubt there is now some truth in this, and that his claims are not properly recognised and rewarded; the public recognition may be tardy, but it may be all the more generous when it comes.

Much progress in pharmacy has marked our period. Many of us remember, with a shudder, the awful powder, the very thought of which haunted our young dreams, taken in some kind of jam, and which gave us a growing horror of that particular variety of preserve which we have never got over. That does not represent the elegant pharmacy of to-day, and our children can take it in a tabloid: much has been done, and more will yet be done to make the administration of nauseous medicines agreeable.

The pharmacist deals with fearfully destructive weapons, and requires a good deal of the *suaviter in modo* to cover his *fortiter in re*. He deals in the oldest of all chemistry, that of medicine. His alchemist ancestors worked early and late to find the elixir of life; he is equally industrious, and much more successful, in his constant search for preventives of death. He is the only person legally allowed to call himself chemist in this country, but perhaps he may yet alter his cognomen. Pharmaceutical chemist is too long, pharmakeutical is too dreadful, pharmacist is not euphonious. I would suggest pharmacian as being more like physician and surgeon, and that his shop, as suggested long ago by Ince, should be called pharmacy. Judging by the necessity of a carte-de-visite being required to secure a situation, I assume that, in his younger days at any rate, he must be good-looking, and I am not aware that this is an indispensable qualification of any other variety of chemist. But as some of the fair sex are qualifying to take his place, this may put him at a disadvantage. An anomaly exists in Scotland in pharmacists not being secured, as they are in England, from serving on juries; a letter received from the late Lord Advocate convinces one that this has only to be properly represented to be redressed.

Poisons.

In a free-trade country we are agreed that there shall be no free-trade in poisons, and that those only shall be allowed to dispense them who have passed the stringent examinations of the Pharmaceutical Society. The public themselves can judge the value of groceries, of which the more sales the better, and if they are taken in it is their own fault; but they know nothing about medicines, of which the less sold the better for them. They may buy a second quality of the one, if they want something cheaper, but there ought to be no second quality of the other: that must be purity itself and above suspicion. The average Briton is not to be trusted with stimulants, much less with more powerful poisons. We refuse to sell pistols to infants, and poisons to ignorance. The pharmacist does not yet get fair play: grocers and many other dealers have been allowed to traffic in poisons; open doctors' shops compete with him in the sale of medicine, and then the great co-operative trawler bears down upon him and nets everything, not only from a side of bacon to a chest of drawers, but asserts the right also to physic and poison as well as feed, clothe and furnish everybody. The capital of these co-operative societies has increased during our period from 656,640*l.* to 13,721,008*l.*, and the sales from 2,500,000*l.* to 33,000,000*l.* During the past year, however, considerable progress has been made in asserting the rights of the pharmacist as against the sale of poisons by unqualified persons.

[* Prof. Drummond.

The prosecutions in Glasgow by the Pharmaceutical Society of some of the open doctors' shop have revealed a low state of medicine in that great city which, fortunately, we look for in vain elsewhere.

GLASGOW.

In going over the Pharmaceutical Register I was surprised to find that there are only fifteen pharmaceutical chemists in Glasgow against thirty-seven in Edinburgh. I append the numbers in five of the larger cities and towns in Scotland:—

	Pharmaceutical Chemists	Population	1 Ph C in
Greater Glasgow	15 ..	653,200 ..	41,012
Edinburgh	37 ..	261,231 ..	7,031
Perth	2 ..	29,902 ..	14,951
Aberdeen	10 ..	112,923 ..	11,293
Dundee	4 ..	140,693 ..	35 164
All Scotland	119 ..	4 033,103 ..	33 891
London	507 ..	4,231,431 ..	8 346

This table supplies an object-lesson in Scotch pharmacy, and shows that the higher qualification of the Pharmaceutical Society has not been attractive in Scotland generally. There are twenty large towns in Scotland, with a total population of 471,201, which have no pharmaceutical chemist. Greenock and Govan, each with a population of 60,000, have none; the fair city of Perth, the capital of Scotland to 1842, and Aberdeen are better; but the other cities, except Edinburgh, have a very small representation of pharmacists, and Glasgow presents an extraordinary contrast to Edinburgh in this respect.* There are seventeen of our pharmaceutical chemists in the Mauritius and fifteen in the city of Melbourne, so that Glasgow is much worse off in higher pharmacy than those remote dependencies. What can be the reason of this? The answer is obvious. Pharmacy is at a low ebb here because the work is done by the wrong class. It is estimated, there are 300 of these open doctors' shops in greater Glasgow. Now, this may be justifiable in out-of-the-way country districts, but there can be no excuse for it, except use and wont, in the second city of the empire. Some of these shops have only lads or girls as assistants: whether the law can put this sort of thing down entirely or not I do not know, but it certainly ought to have that power. The three branches of the medical profession should be entirely distinct—the physician, the surgeon, and the pharmacian. The physician should prescribe the medicines but not dispense them, and the pharmacian should dispense but not prescribe. This is the law in France, Germany, and other civilised nations, and it must eventually be the law here. At present, over Great Britain, the pharmacists do only a small portion of the dispensing; the bulk is done by those medical men who represent the old apothecaries—the relics of a bygone age. A physician is not now a seller of physic, and a surgeon is not now a barber. Medical advice and the payment for it does not now depend on the quantity of medicine that can be poured into the patient. We all wish to take as little as possible. The surgeon does not sell his instruments, nor does he make them; he only uses them. Why should the physician do otherwise? That the recent prosecutions are approved by the Faculty of Physicians and Surgeons in Glasgow is shown by the following resolution recently passed by the Council:—"'The Council, in view of a recent discussion on the subject in the Faculty that some Fellows have their names appearing so prominently over open-shop doors, or what appear to be shop-doors, so as to convey the impression that they keep open-shops for the sale of drugs, and thus violate a regulation of the Faculty, resolved that the special attention of the Fellows be called to the matter, and that they be requested to avoid everything which might have even the appearance of infringing this or any other of the regulations which they have undertaken loyally to obey." That this step was necessary, the following advertisement, taken from a Glasgow daily paper, is convincing:—"To Druggists.—Wanted, young man or youth to keep doctor's shop for a week."

PATENTS.

There are other chartered libertines who have long been disposing of poisons through proprietary medicines, the sort that "don't contain no mercury and goes right to the spot." So it does; for the spot is the extraordinary gullibility of the British public, who will swallow anything with an air of secrecy or mystery about it.

Sir Kenelm Digby's cephalic snuff, "composed of noble cephalic subjects which at once or at most with three times using it, with God's blessing, cured the apoplexy" and everything else, has its counterpart still amongst us. Consul Denby says that 13,000 lbs. tiger's bones, valued at $2,000, were shipped from one port in China in 1889 for making a tonic medicine to give a tiger's strength and fierceness to the Chinese buyers. Are we any better, and is there anything too ridiculous to attract by advertisement our "thirty millions, mostly fools"? The fact is they require to be saved from these things. In Bulgaria a wholesome law renders a proprietor of medicine advertised to cure a certain disease liable to imprisonment if it fails, and as many of ours are advertised to cure all diseases, from a corn up to a consumption, it would be easy to commit under this law. Even under our own law a lady has recently recovered 100*l.* from certain advertisers for non-fulfilment of contracts. Of course, there are some good medicines among the patents, and these would always survive; but of many, the following advertisement, cut from an Irish paper, is descriptive:—"Wanted, a gentleman to undertake the sale of a patent medicine; the advertiser guarantees it will be profitable to the undertaker." Why should not these proprietary medicines be really patent, or patented medicines? If they were, and the specification filed in that receptacle of curiosities the Patent Museum, it would be still more interestingly ridiculous. These licences realised last year 225,701*l.*, but that is nothing in our national revenue, and it had better be abolished altogether for all the good, or rather ill, it does. We are told that one firm alone pays over 100,000*l.* for advertisements, and it is said to be good for trade—or is it tirade? But there is another side to the question. According to Murrell 15,000 children are killed every year by soothing-syrup. In 1890 there were 663 fatal cases of poisoning, and of these 149, or 22·4 per cent., were from opium in various forms. Chlorodyne counts for eleven, we owe to this the recent action taken by Government against the proprietors, and the legal decision, that it can only be sold in future under poison restrictions and by qualified men. Coroners have repeatedly called attention to the danger attending the sale of these articles, and we may hope now that such dangerous medicines will not find their way without a caution into the hands of the general public. The *Lancet*, the *British Medical Journal*, and the daily press, have applauded this decision. And I hope that now the Council of the Pharmaceutical Society know their strength they will use it—mercifully of course, but firmly, as not for themselves, but as a protection to the people.

EDINBURGH.

I congratulate the pharmacists of Edinburgh that they do worthily represent Scotch pharmacy and pharmaceutical education, in a city so noted for its noble University and its fine schools as a centre of medical and general education. While Glasgow is celebrated for the extent and variety of its larger chemical-manufacturers, Edinburgh is no less famed for its pharmaceutical specialities.

Edinburgh will always be renowned throughout the world as the birthplace of chloroform, and of all its honours we must give the palm to this. It would be impossible to estimate the agony relieved and the pain assuaged or to over-estimate the vast debt which suffering humanity owes to the pharmacy of this city. But it is celebrated also for the manufacture of morphia, salicin, and antiseptics—the Lister foundation of modern surgery, so common now that every soldier carries an antiseptic dressing in his knapsack; and if we add the many lives which this treatment has saved, it greatly increases the sick and wounded world's indebtedness. Gelatine also is a very large article of manufacture here.

In special investigation from the University, I need only allude to the work of Professor Crum Brown on methyl and ethyl derivatives of strychnine and atropine, and his recent electrolytic synthesis of succinic, suberic, and sebacic acids. Edinburgh may also be proud of its great infirmary, its splendid museum, and its free library with its suggestive motto, "Let there be light." The Pharmaceutical Society may well be proud of the activity of pharmacy here. The evening meetings held last winter compare most favourably in interest and importance with those in London. The Assistants' Association, the members of which have much assisted in the Additions to the Pharmacopœia, and the Pharmacists' Athletic Club are worthy of the highest praise; it is refreshing to hear that notwithstanding their excellent scientific winter work, they held athletic sports last month, in which the usual competitions were fought and won, and to know that a golf-club with a gold medal for competition, has been formed. I suggest most respectfully, to the Assistants' Association to recommend to Dr. Attfield for his next report that the bicycle, golf-club, cricket-bat, and tennis-racket should be added to the B.P.

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* It will be seen that Edinburgh is better supplied than London, but there are seven towns in Scotland better supplied than Edinburgh.

They might be placed among "the articles employed in chemical testing"—*i e.*, for the testing of chemists' chests. He will never get more valuable preventive medicines to include in that great work.

BOTANY.

In all pharmaceutical research the study of botany is necessary, so that the plant can be carefully selected before any investigation of its properties is made. There is no difficulty in studying botany here, as the lecture-room and laboratories in the Botanic Gardens are most complete. Glasgow is not so well off, but the University is taking the matter up in earnest, for there is much need of proper botanical class-rooms, museums and laboratories there. Prof. Balfour tells us that there was a Botanic Garden here so early as 1670 for the cultivation of medicinal plants. The world commenced with a garden, and we are led to expect it will end with one, when the desert shall blossom as the rose. We hear of artesian wells in the Sahara desert already rendering a part of it fertile, and given a fertile soil, the air and the birds will plant it. It is not only the rose of Jericho (*Anastatica*) which blows about and grows everywhere. Sebastian found in the ruins of the Colosseum at Rome 260 species of plants brought there by birds, and Darwin grew 82 plants from a ball of clay in the foot of a partridge. The sun never sets on the plantations of our mighty empire. Plants yielding fruit, flowers, and medicine grow for us all over it, and there is not a single hour, day or night, during the entire year when some of these are not ripening for our use—fruit and perfume farms in Australia, for instance. On account of our great ocean commerce, we ought to have the advantage in securing and bringing home the produce of other lands. Thanks to our swift steamers, fruits grow for us abroad better than at home; and this trade, though already large, is in its infancy. The value of fruit in diet is now better known—the grape, the orange, the apple, and for vegetables the tomato, the onion, and the celery, and many others have their valuable properties. There is room for research in the juices of fruits; a recent investigation shows a digestive ferment like papain in pineapple-juice, and it is probable that some such ferment is widely distributed in fruits. The study of the edible fungi would lead to an additional food-supply almost entirely neglected; while that of microscopic fungi is becoming more interesting every day. The *Phytophthora infestans*, causing the potato disease, and the *Oidium Tuckerii*, which ravages the vineyards, the numerous ergots which do so much damage to corn-crops, and those which attack our fruit-trees, are only instances which will repay investigation, and may lead to important commercial results. The rise of the sap in high forest-trees is a subject of which almost nothing is known. The formation of organic compounds in plants from inorganic is another tough subject. It has been pointed out that the necessary elements in plants have no higher equivalent than fifty-six. The cultivation of medicinal plants, with the special view of increasing their active principles, is capable of extension, and there are many fertile acres lying idle. Our own wild plants present an immense field for research—to even enumerate those common plants which have been employed in medicine from time immemorial would require a paper to itself. Many of these must possess valuable properties, and it is quite possible we may have too hastily thrown aside some of these in favour of other plants from abroad. Take, for instance, an old remedy for dropsy—the lily of the valley. The examination of this plant has led to the discoveries of convallarin and convallamarin, a valuable remedy for certain heart-diseases. The examination of native herbs might be largely extended.

No ear hath heard, no tongue can tell,
The virtues of the pimpernel.

Is this only fancy, or may there not be some medical virtue intended? The Druids looked on the mistletoe and some other plants as sacred. Is it not probable that the known medical properties of the plant gave it this position? Waste weeds even may be valuable, as, for instance, Esparto grass for paper, and the weed of the Bahamas for rope.

PHARMACY.

It is worthy of notice that tartaric acid and citric acid have been synthesised. Indiarubber and guttapercha would appear difficult to make in the laboratory; but Professor Tilden, our first Bell scholar, has obtained the former from the isoprene of oil of turpentine by spontaneous polymerisation. If something more difficult is wanted, there are ivory and whalebone wanting substitutes. These are getting dearer every day; every pound of ivory is said to cost a human life; and the small quantity of whalebone got this year fetched 3,000*l.* per ton at Dundee.

As showing the rapid progress of organic chemistry, I notice, in the Journal of the Chemical Society for July, the following new alkaloids:—Aristolochin, aristine, from species of *Aristolochia*; ephedrene, from *Ephedra monastacia*; pillijan, from *Lycopodium saururus*; glaucine, from *Glaucum luteum*; and solidarin, from *Lupinus albus*. This is pretty well for one month. I am sorry to add that all these discoveries are by foreign chemists. In the same journal there is a new sugar by Baeyer; he calls it the simplest sugar of the inositol group; he also calls it cistransparadihydroxyhexamethylene—but as that would be a difficult name to sell over the counter, the author has kindly contracted it to quinitol.

We have now a number of compressed gases, which are chemical engineering conquests over great difficulties, and very useful, such as carbonic acid, sulphurous acid, nitrous oxide, hydrogen, oxygen, and nitrogen; the latter has 5 per cent. of oxygen left in, and is offered as an anæsthetic; even chlorine is now to be obtained in liquid form; extracts of meat and malt, peptones, lanoline, vaseline, and cocaine for local anæsthesia are all of our period.

Nickel and aluminium are two metals now cheaply produced, and are both—and also aluminium bronze—likely to be useful in pharmacy. The great number of colour-indicators that have been added to litmus and turmeric, for the estimation of various bases and acids, give great facilities in testing; volumetric analysis is increasingly useful, and the standard work is still that of one of our founders, Sutton. The training of a pharmacist is particularly valuable for that of a general analyst, whereas the latter are not specially trained in materia medica, and the examination of medicines ought to be in the hands of a pharmacist.

PTOMAINES.

There appears little doubt now that infectious diseases are the product of the ptomaines, resulting from the action of bacteria; these highly toxic alkaloids have been mistaken for other poisonous alkaloids in *post-mortem* examinations of human subjects where poisoning was suspected. In some criminal cases these have been mistaken for coniine, strychnine, delphine, and morphine, which they closely resemble in their reactions. Others resemble nicotine, atropine, digitaline, veratrine, and curarine. It is obvious, therefore, that the *post-mortem* examination for poisons presents hitherto unexpected difficulties. Many fatal cases of poisoning have also occurred from the presence of these ptomaines in meat, especially in pig-meat, which bears out the value of the Mosaic restriction. The following toxic ptomaines have been insolated, and the formulæ are known:—Cadaverine, isoamylamine, neurine, choline, mytilotoxene, typhotoxine, tetanine, and mydatoxene. No doubt many more will yet be added to the list; but Professor Simon points out that the bacterial proteids produced from the bacillus of cholera, typhoid fever, and diphtheria are even more more poisonous, and have not yet been isolated. Dr. Koch's *tuberculin* is also a poison of extraordinary virulence. When these bodies are known, the diseases may be conquered by fighting the bacteria with their own products, thus adopting a new and true homœopathic treatment.

The pharmacist will be called upon to isolate and prepare these bodies, and I hope he will also have a large share in the great work of their further investigation. It will call out the highest powers of research, but that ought not to deter him. The first chemical laboratory in London was that erected by the Pharmaceutical Society, and they are still to the front, having founded the first laboratory devoted entirely to original research in pharmacy. This laboratory has already produced some brilliant researches, and of great practical value, though I hold that is not the first thing to aim at. The scientific side, not the commercial, must be taken up first. We want a diligent search for new truths: we are content to wait for their application. The new title of Research Fellow will, I hope, attract many of the younger men. I would point out, too, that the British Pharmaceutical Conference possesses a research fund, and that we are glad to have demands made on it. There is an immense field for research in the extraordinary variety of natural products which, in daily increasing numbers, pass under the notice of the pharmacist; the book of Nature is always open to his study, and she brings her own reward.

Mr. Goschen in his last Budget said that the profits of the cotton-lords were not equal to those of the medical profession, and the pharmacist may get his own share some day; and the profits on pills will not always be reckoned as pillage. In this purely commercial age, it may seem quixotic to remark that money is not everything. Those of us who are not overstocked with it ought to be thankful for the many good things that money will not buy. It cannot buy health and happiness, but it can, and it does often, sell them. "Better is it to get wisdom than gold," said the king who had abundance of both.

The world provides for the survival of the fittest, but who is to look after the maimed, the halt and the blind? It is the honoured privilege of medicine to take care of the unfittest, the wounded, the weak, the weary who drop out of the race, and restore them to their places in life. The physician's remuneration does not begin and end with his fee; the thought of the conquest won by his knowledge in the restoration of the sick patient to his family, after a long and anxious struggle with disease, must ever form the largest part of it. The same greater reward awaits the surgeon, when his skill enables him to restore some poor limping cripple to renewed activity. And has not the pharmacist his share in this better recompense when he discovers some valuable remedy, and contributes a new weapon to this noble fight? Let me advise our young pharmacists to educate themselves to take their proper share in this great victory. If they are the least afraid that there may be any difficulty in finding a place for a well-educated man, let me remind them of the saying of a canny old Scotchman, so characteristic of his persevering race—

There's aye room at the tap.

Mr. Stanford spoke for fully an hour, and was frequently applauded, while many a laugh made the time feel shorter.

THE PRESIDENT THANKED.

Mr. R. REYNOLDS (Leeds), in moving a vote of thanks to the President for his address, said it was with very great satisfaction to him, as one of the President's old colleages at the first meeting in Newcastle, that he should have been selected to offer the thanks of the meeting for the office which he had now performed to the Conference. He did not regret that it had fallen in these latter days that Mr. Stanford should occupy the chair. He had a right to it any time within the last twenty years. He was able to enforce the lesson which he had so properly laid before them—those broad views and that question of technical chemistry which was the great force of the age. When the end of the century had its history written, he was convinced that the particular aspect which the historian would note in the last ten years would be the spread of technical education. Amongst the technical chemists he thought Mr. Stanford stood first. (Applause.) They would recollect those honours which had been conferred upon him—those gold medals of the International Exhibitions for his work in the kelp-industry in which he (the speaker) believed Mr. Stanford had no competitor. It was, therefore, well that they should have heard the question of applied chemistry put before them so broadly and with that relation to their own art, because Mr. Stanford could justly claim that pharmacy is an admirable basis for those who afterwards may feel inclined to extend into other paths. He begged to move that the heartiest vote of thanks of the Conference be given to the President for his able and eloquent address. (Applause.)

Mr. PETER BOA desired, in one word, to second the vote of thanks.

Mr. T. B. GROVES (Weymouth) said he had the honour to ask them to respond to the vote of thanks. It was almost a painful duty to him, as he could not help thinking that he was now at the top of the tree of ex-Presidents, all of his predecessors, except Mr. Bentley, having departed. He asked them to accept the vote of thanks by acclamation. (Loud applause.)

The PRESIDENT thanked the Conference for the kind vote, and apologised for the length of the address.

THE UNOFFICIAL FORMULARY.

Mr. W. MARTINDALE, Chairman of the committee which has charge of the Unofficial Formulary, reported that, as the printers have a good stock of the 1891 Formulary in hand, the committee had not thought it necessary to produce any new formulæ, and they have enough public and private criticism (mainly as to the keeping properties of existing preparations) to keep them working some time should they be again reappointed.

READING OF PAPERS, AND DISCUSSIONS THEREON.

The first paper read was entitled

NOTES ON STARCH-DIGESTION.

By G. A. GRIERSON, F.L.S.

Medical men now appear to have arrived at the opinion that starches have a good deal to do with dyspepsia, and the consequence is that there is now a regular demand for starch-digestives, especially malt and its extracts and preparations of the pancreatic ferment. The author of the present paper considered that pharmacists should know well the conditions under which such preparations are most active, and as there is some confusion in the testing of malt and pancreatic extracts, through different starches being used in the experiments, the notes of work which he had done in the course of the last two years may assist in producing uniformity. First, as to the relative digestibility of different starches. Experiments were made with mucilages of the different kinds of starch, flours, &c., made by boiling 1 gramme of the starch or flour with water, and making up to 100 c.c. with water. The action of 1 c.c. pancreatic essence at 100° F. on the 100 c.c. of mucilage was then determined, with iodine as an indicator, and the following are the results:—

Maize-starch gave a blue colour after three hours' digestion same after twenty hours.

Wheat-starch and rice gave the blue colour after two hours' digestion.

Tapioca: Faint green at the end of thirty minutes.

Tous-les-mois, Bermuda and St. Vincent arrowroots, and potato-starch ceased to give the blue colour at the end of ten minutes.

Oatmeal, after digesting eighty minutes, gave an exceedingly faint blue.

Wheat-flour: Same after two hours.

Potato-flour: A mucilage of 2 grammes of this with the same quantity of pancreatic essence ceased to give a blue colour in ten minutes.

Boiling the starch-mucilage did not accelerate the digestion. The experiments were repeated with malt-extract, and the conclusions arrived at were that tous-les-mois, arrowroot, and potato-starches are the best for testing malt and pancreatic preparations, as they are most easily digested; and for the same reason they are the best for weak digestion. There is no difference between low and high priced arrowroots. Root-starches are more digestible than seed-starches.

In some experiments on the influence of temperature on the digestibility of starch (the experiments being in all conditions except temperature like the above, and starch the agent) it was found that at 60° F. with pancreatic essence the blue coloration ceased in half an hour, but in ten minutes at 100°, and fifteen minutes at 150° F. High temperatures do not, therefore, as in the case of pepsin, accelerate the rate of digestion.

Dilution appears to exercise a marked influence in retarding the rate of digestion. A gramme of arrowroot was made into mucilage with 50, 100, and 150 c.c. of water, 1 c.c. of pancreatic essence added, and it was found that the stronger solutions (*i.e.*, those with the least water) digested rather more rapidly. The author considered that this is due to the dilution of the ferment, for in experiments wherein the quantity of ferment was varied, the rapidity of digestion was directly proportional to the amount present. The addition of chemicals to a 1-per-cent. mucilage of arrowroot yielded some interesting results bearing upon pharmaceutical and physiological practice. One cubic centimetre of B.P. hydrochloric acid had the effect of completely precipitating the starch, apparently unaltered, after digesting for forty-eight hours at 100° F. Saliva was substituted for pancreatic essence, but the result was the same; on omitting the acid, the saliva did the work in four minutes. The author believed that these experiments show that starch-digestion does not take place in the stomach—at least when the ferments of the saliva and pancreatic juice are only present; also, that they show it to be extremely probable that some forms of dyspepsia may be due to low alkalinity of the gastric juice, and its consequent inability to neutralise the acid-contents of the stomach when they are emptied into the duodenum. It might be supposed from this that the presence of an alkali would facilitate the digestion, and that is generally believed, but experiment did not support the idea. One per cent. of sodium carbonate was used instead of the hydrochloric acid in a similar experiment to that last described, and after two hours digestion was far from complete. Alcohol did not affect the digestion one way or other, although 10 c.c. of Scotch whisky was added along with 1 c.c. of pancreatic essence in a similar experiment—that is, the author explained, what would represent the average present in the stomach after a glass of Scotch whisky.

The author, in concluding, referred to the colours given by different starches: 1 c.c. of decinormal iodine was diluted with water up to 100 c.c., and a mucilage of each starch was made from 0·1 gramme in 10 c.c. of water. To each starch-mucilage 1 c.c. of the dilute iodine was added. Arrowroot, potato-starch, and tapioca gave a bright blue; rice, a faint blue; maize and wheat, a faint violet colour. When more iodine was added to the faint colours, the blue was greatly strengthened, and the author inferred from this that there is a reducing body in the seed-starches which prevents the formation of a deep-blue colour until a certain point is reached.

The PRESIDENT said that this was a very interesting paper, but he hoped that a certain portion of it would not be taken as an advertisement for the Distiller's Company. (Laughter.)

Mr. A. W. GERRARD remarked that the paper had a considerable amount of interest for him, as he had for a long time been engaged on the pancreatic digestion of proteid matter (lean meat), and his own results, to a certain extent, corroborated those of Mr. Grierson on starch. Thus, in regard to temperature, his own experience was that 120° F. was the point at which pancreatic digestion of meat was greatest, a higher temperature than that being decidedly detrimental; indeed, 140° F. he would call "fatal." This was his experience in working on hundredweight quantities of meat. In regard to the influence of dilution with meat it was favourable rather than otherwise, and, instead of the digestive process taking three or four hours, as was generally stated, he found that in one, or at the most two hours, the process was complete, if the meat were finely divided. Of course, it could not be expected that sinewy portions of meat would digest so quickly.

Mr. T. B. GROVES said he was surprised that potato and maranta starches were now put on the same level, because, as a matter of fact, they differed greatly. For example, years ago it had been pointed out that while a jelly of potato starch became liquid in a comparatively short time, a maranta starch retained its firmness for a considerable time. Mr. Groves also referred to the discovery by Mr. Brown of a cellulose-dissolving ferment in grain, and the probable influence of that upon digestion.

Mr. LLOYD WILLIAMS said that it must be remembered, in connection with colour-changes of a solution of diastase upon starch decoction, that according to the recently published researches of Lintner, jun., the received ideas upon the composition of the coloured bodies which successively appear during the progress of digestion necessitate some modifications. Lintner describes these changes as being due to the presence of a body which he described as isomaltose, and varying quantities of maltose, as against the erythro- and achroo-dextrins described by O'Sullivan. It would be necessary, therefore, that future experimenters should bear this in mind.

Mr. DOTT said that there was one thing in testing extract of malt which was apt to lead to a fallacious inference—viz., that a few particles of starch might remain unacted upon, thus giving the blue iodine coloration, although digestion might be practically complete. For that reason he thought that another means of determining the completion of the digestive process was desirable.

The PRESIDENT suggested that Mr. Dott might explain what he meant by another test.

Mr. DOTT, in response, said that the amount of sugar actually formed ought to be estimated.

Mr. KEMP, of Manchester, on behalf of those who were sitting at the back of the room, said that they would be able to follow the discussion with much greater interest if those who joined in it would speak a little louder. (Laughter.)

Mr. GRIERSON, on being called upon to reply, said that he expected that there would have been much more discussion, as his notes were fragmentary and, he thought, incomplete. There were, however, one or two points raised in the course of the discussion which he might refer to. He corroborated what Mr. Gerrard had said regarding the dilution in the digestion of proteids. It was the case that the process proceeded much more rapidly both with pepsin and pancreatin, although the reverse was the case in starch-digestion. Mr. Groves's remark on the existence of a cellulose-dissolving ferment in grain was of the highest interest. As to Mr. Dott's suggestion to estimate the value of malt-extract by the amount of sugar which was formed, he would say that as the starch was not wholly converted into sugar that would be impossible.

The PRESIDENT then called for the next paper, which was on

A NEW ANTIDOTE FOR STRYCHNIA-POISONING.

By JAMES MACKENZIE, F.R.A.S., Edinburgh.

The author of this paper, a well-known Edinburgh chemist, proposed in it to show how, by the action of an electro-magnetic current, the toxic effects of strychnine upon the animal organism may be counteracted. This experience dates back as far as 1870, when a gentleman gave a Dandie Dinmont terrier a laxative pill such as he was accustomed to take himself. The pill contained colocynth and $\frac{1}{2}$ grain of extract of nux vomica. The dog died of strychnine-poisoning. A similar dog got one of the same pills, and it also died. These deaths set Mr. Mackenzie a-thinking, and when a third dog happened to be accidentally poisoned with 1 grain of strychnine he had a chance of trying the effect of electricity upon it, especially as the dog's jaws were locked and chloroform or belladonna could not be administered. So the terminals of one of Maw's electro-magnetic machines were applied, one to the dog's neck, the other to its rump, and in the course of four hours the animal was sufficiently recovered to express its thanks—with a look; and a dose of castor oil completed the cure. The author thought that this result warranted further attention being given to the subject.

Mr. MARTINDALE, in opening the discussion, said they had a more convenient preparation at hand in most pharmacies in dealing with cases of strychnine-poisoning, and that was apomorphine. A hypodermic injection of $\frac{1}{2}$ grain in solution would act more promptly and give immediate relief by emetic action.

The PRESIDENT said he did not catch how long the treatment was kept up.

Mr. MACKENZIE: The action was continued for four hours.

Mr. GERRARD said he believed it was impracticable to give apomorphine in cases of strychnine-poisoning, as it was likely to bring on the tetanising effect of strychnine by its action. The best method, he thought, was by first administering chloroform and then using the stomach-pump.

Mr. F. C. J. **Bird** asked what was the strength of the current of electricity applied. He presumed Mr. Mackenzie used an alternating magnetic-current machine. Did he employ the full power of the machine for four hours, or only half strength?

Mr. **Groves** said that some years ago he had a favourite dog which he restored from strychnine-poisoning in about three hours by giving it repeated doses of chloral. He did not know, however, whether the result was obtained by the neutralising effect of the chloral on the strychnine.

Mr. **Atkins** also gave particulars of a case he had seen, in which the galvanic current had been used after a lapse of time on the human subject without success, the man finally dying. He should like to ask Mr. Mackenzie whether he had any idea as to the importance of the application of electricity very promptly, or whether, if the poison had taken a firm hold, the electricity was effective.

Mr. C. J. **Strother** said he would like to ask a question on what he might call the mercantile side of the paper. How would chemists under the present law arrange to supply customers in the country with Fellows's syrup? (Laughter.)

Mr. **Mackenzie**, in reply, said the machine he used was one of Maw's in a small box, 10 × 4½. The current was not a strong one, but it seemed always that the stronger the current was kept up the better effect was there on the animal. In reply to Mr. Martindale, he thought it was not so much a question of what was the best thing to give as to how to give it, because the jaw was so firmly locked that it was almost impossible to get anything swallowed. He thought the galvanic machine used on the human subject would have to be proportionately stronger than that used for the smaller animal.

The next paper was a

NOTE ON THE PURITY OF COMMERCIAL SALTS OF LITHIUM.

By **Wm. Mair.**

Acting on a suggestion contained in the Blue List, the author examined a few samples of commercial carbonate and citrate of lithium. They were obtained from manufacturing chemists and wholesale houses. In the case of the carbonate, conversion into sulphate and subsequent examination yielded the following results:—

—	Description of salt	Yield of sulphate from 1 grm. (Theoretical yield 1·486 grm.)	Impurity	Percentage
1	Fine white powder	1·485 grm.	—	
2	Finely granular powder	1·460 „	Sodium carbonate	—
3	Fine white powder	1·479 „	—	
4	Finely granular powder	1·448 „	Carbonates of sodium and magnesium	·2
5	„ „ „	1·45 „	Sodium carbonate	trace
6	Heavy white powder	1·475 „	Calcium „	„
7	Very fine white powder	1·464 „	Sodium „	·1

Sulphating was carefully performed in a platinum crucible and the weighings done with a fine laboratory balance. The calcium in No. 6 was present as the merest trace (not estimated but confirmed), and may have been incidental to the process of manufacture. The alcohol and ether process of the U.S. Pharmacopœia was used for determining the amount of sodium salts present. The author was of opinion that commercial carbonate of lithium as now supplied is reasonably pure and is free from actually added extraneous matter.

Examination of the citrate yielded the following results:—

1. Fine white powder	Pure
2. Finely granular powder	Traces of sodium
3. In beautiful prismatic crystals..	Pure
4. Granular salt	Traces of sodium and potassium
5. Crystalline salt	„ „ „
6. Granular salt (slightly coloured)	„ sodium
7. Fine white powder	„ „

The author did not find the B.P. method of conversion into carbonate satisfactory, but he found the suggestion by Mr. B. S. Proctor useful—that of adding portions of yellow oxide of mercury to facilitate oxidation. The method of conversion into sulphate—the carbon being expelled as carbonic-acid gas—is more readily performed. The coloration of Example 6 did not respond to any chemical test, and may have been due to the process of manufacture. Nos. 1 and 3 may be regarded as chemically pure, and are supplied by makers who have attained to some reputation for the production of really fine chemicals. The author did not examine any samples of German origin, and he added:—

"The object of this note is chiefly to suggest that greater attention might be paid by our own manufacturers to the perfection of purity in pharmaceutical chemicals. It is, perhaps, a fact, that our chemical laboratories have to depend on Germany for their supplies of absolutely pure chemicals. Salts of excellent quality and of a high degree of purity are made by certain British houses, but it would be desirable that a higher general standard of purity could be obtained, and if the B.P.C. in its efforts 'to maintain uncompromisingly the principle of purity' shall effect any measure of this, the suggestion may not be taken amiss."

Mr. **Dott** said he had occasion now and again to examine the commercial lithium carbonate and found that it is never quite pure, but it may be regarded as sufficiently pure for the purposes of pharmacy.

Mr. **Thomas Tyrer** pointed out that there was a good way of distinguishing the pure from the impure salts—viz., that those containing sodium potassium and the like were in all cases granular. As to Mr. Mair's concluding observations in regard to the supply of pure chemicals, he would say that when the educated pharmacist ceased to use inferior chemicals on account of cheapness in price, competition would cease, and pure chemicals would be readily obtainable.

The following paper was then read:—

VALERIANATE OF ZINC.

By **W. A. H. Naylor.**

The author stated that he proposed to call attention to the quality of valerianate of zinc supplied by manufacturers for use in medicine. Samples were obtained from leading firms and were marked either crystallised, B.P., or precipitated, the last two only being designated on order-form. The samples, eight in all—including an experimental one (No. 5) made by Mr. Naylor himself, from stock articles by official process, for purpose of comparison—were examined as follows:—

(*a*) A weighed portion was ignited, moistened with nitric acid, dried, and again ignited, the residue being zinc oxyd.

(*b*) A known quantity was distilled with sulphuric acid and water 1 : 2. The distillate was titrated with decinormal solution of caustic soda. The sulphuric acid which passed over was determined as barium sulphate, and its caustic-soda equivalent was deducted from the total alkali required for neutralisation. The remaining soda was calculated into its equivalent of valerianic acid. $Zn(C_5H_9O_2)_2H_2O$ is equivalent to 71·57 per cent. of valeric acid.

(*c*) The free acids obtained by distillation with diluted sulphuric acid were neutralised (or left very faintly acid) with solution of barium hydrate. Any sulphate of barium was removed by filtration, and the filtrate evaporated to dryness. Complete desiccation of the barium salt was effected by free exposure to a temperature of 130° C. until its weight remained constant. It was then moistened with sulphuric acid, ignited, and the resulting sulphate of barium weighed. Valerate of barium yields by this treatment 68·73 per cent. of sulphate of barium. The following table represents the results obtained by this method of examination:—

	ZnO per cent.	$HC_5H_9O_2$ per cent. by titration with NaHO sol.	$BaSO_4$ per cent.
1. Zinci valer. crystallised	29·03	73·62	73·63
2. Zinci valer. Brit. Phar., 1885 ..	23·42	57·47	71·92
3. Zinci valer. „	22·84	60·39	73·74
4. Zinci valer. „	20·52	55·72	69·56
5. Zinci valer.	26·79	62·00	68·25
6. Zinci valer. precipitated	49·08	43·71	74·53
7. Zinci valer. „	64·51	18·24	—
8. Zinci valer. „	62·97	59·30	84·60

The samples Nos. 1 to 5 were completely soluble in alcohol, and contained traces only of sulphates. The distillates from sulphuric acid when dissolved in water gave in every case an immediate and considerable bluish-green precipitate on the addition of acetate of copper. In No. 8 acetic acid was present in quantity; the rest—No. 5 excepted—exhibited mere traces. The acid distillate from No. 4 emitted the pronounced odour of valerate of amyl.

The three samples labelled "Precipitated" were only partially dissolved by alcohol. The extent to which they were soluble was determined indirectly by treating them in the cold with alcohol to practical exhaustion, and in the case of two of them drying the insoluble portions in air at the ordinary temperature. The insoluble residue from No. 7 amounted to 75·52 per cent., and from No. 8 to 54·29 per cent. To ascertain if these air-dry residues had a like composition they were separately and successively desiccated over sulphuric acid, then moistened with nitric acid and ignited. No. 7 lost by desiccation 6·70 per cent. and left after ignition a residue of zinc oxide equivalent to 79·38 per cent. Similarly No. 8 lost 4·62 per cent., and gave 8·38 per cent. of zinc oxide. Evidently the insoluble portions approximated to identity of composition. Sample No. 8 gave a residue insoluble in absolute alcohol, which on ignition was equivalent to 31·02 per cent. of zinc oxide.

It has been pointed out by M. F. Sutton that a weak solution of citric or tartaric acid dissolves valerianate of zinc without decomposition, and that it exerts no solvent action on zinc oxide. He recommends this simple test as a means of distinguishing the genuine from a fraudulent article. The Pharmacopœia requires valerianate of zinc to be soluble in alcohol, a requirement that excludes the "precipitated" from official recognition. The Pharmacopœia demand is more exacting than Mr. Sutton's test; for a 2-per-cent. solution of citric acid will dissolve completely samples 6, 7 and 8 of the above table, their respective solubilities being in inverse proportion to their basicity.

Physical Characters.—No. 1 only was "in brilliant white pearly tabular crystals." No. 4 was in small pearly scales. Nos. 2 and 5 were in granular masses, unctuous to the touch. So was No. 3, which presented in addition a dirty white or greyish appearance. No. 6 was in fine powder, and Nos. 7 and 8 consisted partly of powder and partly of small hard pieces. No. 7 was the densest, then followed No. 8 and No. 6.

The author's inferences were:—

(*a*) That the valerianate of zinc used in medicine is not of uniform composition, and that it does not meet the requirements of the official tests.

(*b*) That the valerianic acid used in the manufacture of this salt is prepared from an imperfectly purified fusel oil.

Pure anhydrous valerianate of zinc should yield on ignition 30·33 per cent. of zinc oxide, but since the salt in an anhydrous state is not obtainable by drying "on filtering-paper at ordinary temperatures" it would be unfair to demand so high a percentage. Sample No. 5 shows what is practicable by the B.P. process from chemicals of commercial quality.

Mr. Naylor considers that in the next Pharmacopœia the test of the percentage of residue left on ignition after moistening with nitric acid should specify 26 per cent. as a minimum. The United States Pharmacopœia demands 28·3 per cent. of zinc oxide.

The appeal to manufacturers to use, in the preparation of valerianate of zinc, a purer acid than at present will, he is convinced, be met either by a *non possumus* or a ready response.

The PRESIDENT said it was very remarkable that the salts of lithium should be so satisfactory, and valerianate of zinc so impure.

Mr. JOHN HODGKIN said that there was no difficulty in preparing a proper article if chemists would pay the proper price for it. (Hear, hear.) He would like to know if Mr. Naylor had done anything to identify the organic acids separated during analysis, because the amylic alcohol of commerce was of so variable composition that on oxidation a mixture of isomeric acids was obtained, and it was the difficulty and expense of isolating these which determined the price of zinci valerianas.

Mr. TYRER hoped that the inference would not be drawn from Mr. Hodgkin's remarks that manufacturers were willing to accommodate their products to price. This was very much a question of the quality of fusel oil, and ignorance on the part of certain manufacturers of the fact that the oil generally contained butyl alcohol or its isomers, which, in the course of manufacture, yielded an equivalent of valerianate of amyl. This was pointed out in Attfield's "Chemistry," and it was to that contamination that the bad odour of the valerianate was due. He had lately examined eight samples of fusel oil received from German agents, and the whole of them were unfit as a basis of manufacture. That was the *crux* of the whole question. He agreed that Sutton's test was useless unless the valerianate were pure.

Mr. JAMES MACKENZIE said that valerianate of zinc was at one time more used than it is now. Was that because it was difficult to get it pure or because new heart-remedies had been introduced?

Mr. LLOYD WILLIAMS testified to the extreme variability of commercial fusel oil. German was bad; the English good.

Mr. A. H. ALLEN said there was not much difficulty in obtaining good fusel oil. It was produced by the ton per week in that very city of Edinburgh, and he could say from personal experience, unhappily—(laughter)—that there was a very great difference between the German oil and that made in Edinburgh. He had no doubt about it, for he proved it by experiments on his own body. (Laughter.) He had taken so many drops in whisky every night, and *it was bad*—the German fusel oil, not the whisky. But it should be noted there were four different kinds of amylic alcohol, which, on oxidation, produced eight different kinds of valerianic acid. No wonder they had variations in the character of valerianate of zinc, when they might have any one of these valerianic acids. He thought the Pharmacopœia should say more plainly what it meant by valerianic acid. (Hear, hear.)

Mr. E. S. PARRY said that he could testify to the difficulty Mr. Lloyd Williams had mentioned with regard to the fractionation of fusel oil. In his own laboratory they had had occasion to fractuate a specimen for a special purpose, and it required at least ninety operations before they could separate the oil into anything like chemically pure fractions. It was noteworthy that in some of the samples where the Zn rose in amount, where one would expect a falling-off in quantity of acid, Mr. Naylor's figures showed an increase of acid. This would tend to show that a large amount of butyric, or propionic, or even acetic acid was present, due to the imperfectly purified amyl alcohol. The isomer of valerianic acid could make no difference to the results of analysis, since they all had the same molecular weight.

Mr. MARTINDALE said he always preferred the crystalline valerianate, as being the purest.

Mr. GROVES asked if valerianate of zinc from the natural acid was not obtainable.

Mr. JOHN HODGKIN said it was, but the supply was erratic. Last year, for example, there was very little, and the price was always very high.

Mr. NAYLOR, now replying, said his point was this: If a pharmacist orders zinci valer. B.P. from a manufacturer, he gets something, labelled "Zinci valer. B.P.," which does not conform to official tests. He hoped that manufacturers would soon agree upon this point of isomeric acids, and he thought that some such test as he proposed—viz., a fixed yield of zinc oxide—was desirable.

At this point the members adjourned for

LUNCHEON,

which was served in the dining-room below. It was a hot luncheon, and was considered rather a treat by those accustomed to the cold collations. On resuming upstairs, at 2.15, there were about four dozen gentlemen gathered together, and Mr. Hodgkin was called upon to read his paper, which was as follows:—

CARBO ANIMALIS PURIFICATUS, P.B.

By JOHN HODGKIN, F.L.S., F.I.C., F.C.S.

My attention was some time ago directed to this in consequence of inquiry for Purified animal charcoal guaranteed to answer the P.B. requirements. Accordingly, I made an examination of some that I believed to answer the P.B. tests, but was much surprised to find that the ash left on ignition was far above the P.B. requirements. I have now collected a certain amount of information on this subject, which I think may perhaps be of sufficient interest to lay before this Conference.

The details as given in the Pharmacopœia are as follows:—

"*Carbo animalis purificatus.* Purified animal charoal.

"Animal charcoal from which the earthy salts have been almost wholly removed. Product about 10 per cent.

"Take of

Bone black, in powder	16 oz.
Hydrochloric acid	10 fluid oz.
Distilled water	A sufficiency.

"Mix the hydrochloric acid with a pint of the water, and add the bone-black, stirring occasionally. Digest at a moderate temperature for two days, agitating from time to time; collect the undissolved charcoal on a calico filter, and wash with distilled water until what passes through gives scarcely any precipitate with nitrate of silver. Dry the charcoal, and then heat it to redness in a closely covered crucible.

"*Characters and Tests.*—A black pulverulent substance, inodorous and almost tasteless: 10 or 12 grains well shaken with 1 oz. of water, containing about a fluid drachm of 'solution of litmus,' removes the dissolved colouring-matter; the mixture when thrown upon a filter passing through colourless. When burned at a high temperature, with a little red oxide of mercury, and free access of air, it leaves not more than about 2 per cent. of residue.

"*Dose.*—20 to 60 grains."

I have accordingly made a series of experiments, preparing Carbo animalis purificatus by the processes adopted by the B.P. and other Pharmacopœias. The bone-black that I started with was of the following composition:—

Water	7·773
Ash	76·647
Carbon (by difference)	15·580
	100·000

equivalent to 83·107 per cent. ash, and 16·893 per cent. carbon on the anhydrous substance. The ash consisted of—

Fe_2O_3	1·80
Al_2O_3	0·95
CaO	51·73
MgO	trace
SiO_2	2·86
Cl	0·59
SO_3	1·21
CO_2	1·41
P_2O_5	38·86
Fl	trace
	99·41

—that is to say, principally of lime and phosphoric acid. This was treated by the Pharmacopœia process, using the exact quantities, with the following result:—

Water	00·146
Ash	77·042
Carbon	22·812
	100·000

—equal to 77·155 per cent. ash and 22·845 per cent. carbon on the anhydrous substance. The composition of the ash had now altered as follows:—

	Original Charcoal	B.P.
Fe_2O_3	1·80	1·51
Al_2O_3	0·95	1·20
CaO	51·73	45·33
MgO	trace	—
SiO_2	2·86	3·81
Cl	0·59	—
SO_3	1·21	1·06
CO_2	1·41	—
P_2O_5	38·86	46·46
Fl	trace	—
	99·41	99·37

—showing that the net result of the process had been to remove a small quantity of lime and a little iron. The yield of 10 lbs. of charcoal treated by the B.P. process, I may mention, was 6 lbs. 1½ oz., or a yield of nearly 61 per cent., against the B.P. yield of "about 10 per cent."

This is a fair example of the value of the B.P. process. I have had several experiments made strictly in accordance with the B.P. instructions, and the results are practically uniform.

The French Codex (1884) directs that 1 kilo. of charcoal should be mixed with 4 kilos. distilled water, and that 1 kilo. hydrochloric acid should be gradually added, constantly stirring, and that the material should be left in contact for twelve hours, agitating from time to time. It is then to be washed until free from acid and indifferent to nitrate of silver; it is then filtered and dried at about 150° C., sifted through a fine sieve, and preserved in stoppered bottles. No test is given.

The result of this process is as follows:—

Water	1·976
Ash	56·612
Carbon	41·412
	100·000

—equal to ash 57·76 and carbon 42·24 per cent. on the anhydrous substance. The increase of hydrochloric acid has reduced the percentage of the ash considerably as compared with the B.P. The composition of the ash has now become as follows:—

	Origiual charcoal	Codex
Fe_2O_3	1·80	2·97
Al_2O_3	0·95	0·95
CaO	51·73	47·20
MgO	trace	—
SiO_2	2·86	10·71
Cl	0·59	—
SO_3	1·21	1·48
CO_2	1·41	—
P_2O_5	38·86	36·33
Fl	trace	—
	99·41	99·64

A considerable increase is now noticed to be taking place in the percentage of the silica and iron. A reduction, however, has taken place in the percentage of the phosphoric acid.

As no requirements are given as to the percentage of ash or carbon, the French Codex is in a strong position as compared with the B.P.

The United States Pharmacopœia (6th Decennial Revision, 1883) gives the following process:—

"*Carbo animalis purificatus.* Purified animal charcoal.

	Parts
Animal charcoal, in No. 60 powder	2
Hydrochloric acid	3
Water	A sufficiency.

"Pour the hydrochloric acid, previously mixed with 15 parts of water, upon the animal charcoal, and digest the mixture on a water-bath for twenty-four hours, occasionally stirring. Pour off the supernatant liquid and digest the undissolved portion with 15 parts of water for two hours. Transfer the mixture to a strainer, and, when the liquid portion has run off, wash the residue with water until the washings cease to be affected by test-solution of nitrate of silver. Dry the product, heat it to dull redness in a closely-covered crucible, and, when cool, keep it in well-stoppered bottles.

"A dull, black powder, odourless and tasteless, and insoluble in water, alcohol, or other solvents. When ignited at a high temperature with a little red oxide of mercury and with free access of air, it leaves at most only a trace of residue. If 1 part be digested with 2 parts of hydrochloric acid and 6 parts of water, the filtrate, after being supersaturated with water of ammonia, should remain unaffected by test-solution of magnesium (absence of phosphate)."

It should be mentioned that the U.S.P. Carbo animalis is required to give an ash of at least 86 per cent. of the original weight, which should be completely soluble in hydrochloric acid with the aid of heat, leaving only 14 per cent. for water and carbon. How far the U.S.P. process answers is best seen by the following analysis of a sample prepared strictly in accordance with these instructions:—

Water	00·341
Ash	16·088
Carbon	83·071
	100·000

—equal to ash 16·12, and charcoal 83·88 per cent. on the anhydrous substance—a most marked improvement and advance on the English and French processes, but still not coming anywhere near their own specified requirements. The ash now consists of:—

	Original Charcoal	U.S.P.
Fe_2O_3	1·80	11·38
Al_2O_3	0·95	5·62
CaO	51·73	9·33
MgO	trace	—
SiO_2	2·86	59·00
Cl	0·59	—
SO_3	1·21	2·14
CO_2	1·41	—
P_2O_5	38·86	11·43
Fl	trace	—
	99·41	99·40

A great reduction both in lime and phosphoric acid has now taken place, whilst the iron, alumina, and silica are steadily increasing. The Pharmacopœia Germanica I. 1872 simply included Carbo animalis, and gave no directions for making Carbo animalis purificatus, which has not appeared in any of the subsequent editions; indeed, even Carbo animalis was dropped in the II. and III. Pharmacopœias, the compilers evidently realising the difficulties connected with the subject. The Italian Pharmacopœia, Rome, 1892, uses—

	Parts
Animal charcoal	6
Concentrated hydrochloric acid (s.g. 1·18)	5
Water	100

The process is to mix the charcoal with the acid, diluted with 5 per cent. water. After standing for twenty-four hours the remainder of the water is added, then agitate several times and boil up and collect on a filter, wash, &c., in the usual way. Then follows the important remark, "If a purer quality is desired, repeat the treatment indicated," the compilers evidently being well aware that the initial purification does not give a pure article. No details as to percentage of ash and carbon are given. I have not made a sample by this method, which I have only mentioned on account of the remark as to the second treatment, which is of great service.

These results may be taken to represent the methods that each pharmacopœial authority considered the best, and as the analyses show, not one of them can be held to give a pure or really satisfactory article. The authorities have evidently been under the impression that animal charcoal consisted of carbon and calcium phosphate and infinitesimal quantities of other substances, whereas there are present substances, such as phosphates of iron and alumina (which, after the carbonisation of the bones, become soluble with very great difficulty, and are not easily removed), also silica and a certain amount of calcium sulphate. The processes may be summarised as follows:—

—	B.P.	Codex	U.S.P.
Animal charcoal	16 oz.	16 oz.	16 oz.
Acid, hydrochloric	11⅝ „	16 „	24 „
Length of maceration	48 hrs.	12 hrs.	24 hrs.
Temperature employed	"moderate"	cold	water-bath
Anhydrous result:—			
Ash	77·16	57·76	16·12
Carbon	22·84	42·24	83·88

These results show that the B.P. process is (1) deficient in acid, and (2) the temperature used is not high enough. This is evident on comparing the B.P. with the Codex and U.S.P. results. It now became a matter of interest to examine commercial samples of B.P. Carbo animalis purificatus and to see what was being sold under this name. I procured the following five samples through ordinary trade channels The analyses were as follows:—

—	A	B	C	D	E
Water	17·64	50·44	4·70	5·19	4·01
Ash	16·45	10·00	80·28	73·57	72·67
Carbon	65·91	39·56	15·02	21·24	23·32

equal on the anhydrous substance to—

—	A	B	C	D	E
Ash	19·98	20·18	84·24	77·59	75·70
Carbon	80·02	79·82	15·76	22·41	24·30

The ash analysed as follows:—

—	A	B	C	D	E
Fe_2O_3	4·87	10·21	2·14	2·02	1·80
Al_2O_3	0·51	2·73	0·84	1·07	1·19
CaO	6·38	4·68	53·00	52·67	48·67
MgO	1·02	—	—	—	—
SiO_2	79·80	73·63	3·55	4·48	6·48
Cl	—	—	1·00	0·50	—
SO_3	2·81	0·66	—	1·64	—
CO_2	—	—	2·29	1·22	—
P_2O_5	2·87	7·44	36·89	36·38	40·93
Fl	—	—	—	trace	—
	98·26	99·35	99·71	99·98	99·07

It will be seen that A and B differ very considerably from C, D, and E; in fact, it is evident that they are animal charcoal, which has been treated with acid and a certain percentage of the soluble constituents removed, the high percentage of silica in the ash clearly indicating this. A has evidently been washed with a water containing calcium sulphate in solution. The very high percentage of water in B is worthy of notice; of course, this apparently reduces the percentage of the ash, and as new charcoal will absorb from 80 to 100 per cent. of its own weight of water, this is an easy method of superficial purification.

C, D, and E seem good ordinary charcoals, but not B.P.

These results are excessively surprising, and should put the users of this article on their guard. It is, I believe, practically impossible to make an article that will meet the B.P. requirements, except at a fabulous cost; but it is not difficult to turn out a good article at a moderate price. The best method that I have found to make a good purified animal charcoal is as follows:—Boil the charcoal for some hours with twice its weight of hydrochloric acid and twice its weight of water; filter from the acid solution, and boil up again with half the above quantities of acid and water. Wash free from acid and soluble salts; dry, &c., as usual. Such a treatment gave the following results, F (the product was not heated in a covered crucible, but simply stove-dried):—

	Per cent.
Water	7·847
Ash	13·871
Carbon	78·282

equal on the anhydrous substance to—

	Per cent.
Ash	15·05
Carbon	84·95

The ash analysed as follows:—

Fe_2O_3	5·21
Al_2O_3	1·20
CaO	22·10
MgO	—
SiO_2	54·81
Cl	—
SO_3	3·51
CO_2	—
P_2O_5	13·11
Fl	—
	99·94

This is a better charcoal than any of the others, the U.S.P. coming nearest to it. In order to make a full comparison, the decolorising power of each sample was tried. A standard solution of caramel was made containing 0·05 gramme per litre. Two grammes of charcoal were added to 400 c.c. of such standard solution, and the percentage of colour removed was determined.

The results were as follows :—

	Per cent.
Commercial animal charcoal	79·95
P.B.	38·27
Codex	63·19
U.S.P.	48·05
A	62·54
B	69·88
C	67·42
D	66·01
E	50·73
F	86·76

so that this last sample, prepared by the mode I have indicated, comes out best in every way. It has been frequently stated that the decolorising power of animal charcoal is due in a great measure to the calcium phosphate it contains. The decolorising power of this was determined in the same manner with phosphate prepared according to the B.P. directions, and dried at a temperature not exceeding 100° C. The percentage of colour removed was 32·65, whilst if the phosphate was heated in a crucible (as the charcoal is directed to be done) the percentage removed is only 1·33.

TABLE OF RESULTS.

	Water	Ash	Carbon	On Anhydrous Substance		Percentage Composition of the Ash obtained on Calcination											
				Ash	Carbon	Fe_2O_3	Al_2O_3	CaO	MgO	SiO_2	Cl	SO_3	CO_2	P_2O_5	F	Total	Decolorising power
Commercial bone-black	7·77	76·65	15·58	83·11	16·89	1·80	0·95	51·73	trace	2·86	0·59	1·21	1·41	38·86	trace	99·41	79·95
P.B. 1885 ..	0·15	77·04	22·81	77·15	22·85	1·51	1·20	45·33	—	3·81	—	1·06	—	46·46	—	99·37	38·27
Codex Paris 1884 ..	1·93	55·61	41·41	57·76	42·24	2·97	0·95	47·20	—	10·71	—	1·48	—	36·33	—	99·64	63·19
U.S.P. 6th Decen. Rev. 1883 ..	0·84	16·09	83·07	16·12	83·88	11·88	5·62	9·33	—	59·00	—	2·14	—	11·43	—	99·40	48·05
Commercial samples of "carbo-animalis purif. P.B." ..																	
A	17·64	16·45	65·91	19·98	80·02	4·87	0·51	6·38	1·02	79·80	—	2·81	—	2·87	—	98·26	62·54
B.	50·44	10·00	39·56	20·18	79·82	10·21	2·73	4·68	—	73·63	—	0·66	—	7·44	—	99·35	69·88
C.	4·70	80·28	15·02	84·24	15·76	2·14	0·84	53·00	—	3·55	1·00	—	2·29	36·89	—	99·71	67·42
D.	5·19	73·57	21·24	77·59	22·41	2·02	1·07	52·67	—	4·48	0·50	1·64	1·22	36·38	trace	99·98	66·01
E.	4·01	72·67	23·32	75·70	24·30	1·80	1·19	48·67	—	6·48	—	—	—	40·93	—	99·07	50·73
Special method F.	7·85	13·87	78·28	15·05	84·95	5·21	1·20	22·10	—	54·81	—	3·51	—	13·11	—	99·94	86·76

Calcis phosphas P.B. dried below 100° C.	32·65
Ditto, after ignition	1·33

NOTE.—The decolorising power of the charcoal (without previous drying) is expressed in percentage of colour removed from a standard caramel solution.

In conclusion, I would recommend the adoption of some such process as I have indicated, taking care to use sufficient acid, and to boil well together in the water-bath or otherwise, so as to effect as large a removal of the calcium phosphate and other bodies soluble in hydrochloric acid as possible; that the finished product should not contain more than 8 per cent. of water (drying in a crucible evidently not being necessary) nor more than about 15 per cent. of ash, and containing 75 to 78 per cent. available charcoal. If prepared according to these directions, and meeting these requirements, it will have a high decolorising power. It is possible to make a charcoal with a still lower percentage of ash, even down to below 4 per cent., but the treatment involved diminishes very considerably the decolorising power, and adds enormously to the cost without any compensating advantages. As far as I know—and my experiments confirm my views—it is absolutely impossible to make such charcoal as the B.P. requires, and it therefore seems reasonable to substitute for the theoretical ideal an article that can easily be made and give every satisfaction in practice.

The PRESIDENT said he thought anyone who had had experience in the purification of animal charcoal would not be surprised at the result of this paper. He looked upon the absolute purification of animal charcoal, as Mr. Hodgkin did, as practically impossible. The question was how far it was worth while to carry purification? In the process which Mr. Hodgkin adopted there was still 14 per cent. of ash left. He (the President) was a little surprised to find that where so much of the inorganic matter had been removed, decolorising power was retained, because his experience had been that the more mineral matter was taken out the worse the charcoal became as a decoloriser, and he thought Mr. Hodgkin found that too when he carried it to the very last. His experience was that the process of deterioration began at a much earlier stage than that, and he thought it was progressive. What the absolute decolorising power of animal charcoal was he did not think any of them yet knew. There were many other substitutes that could be got that decolorised better, but they must always be sold very cheaply. The sugar-refiner, who was the principal consumer, got the use of his charcoal for the difference between what he paid for it and that for which he sold it as manure, a difference of 2*l.* to 3*l.* That made it exceedingly difficult to find any substitute for animal charcoal as a decoloriser that could be sold cheap enough.

Mr. DOTT confirmed Mr. Hodgkin's observations. He had gone into the matter more than once, and his experience was that the B.P. process did not give the article which it pretended to—that was to say, one which was not free from ash, but comparatively free from phosphate of lime. He agreed that the amount of hydrochloric acid directed was quite insufficient, and that ignition was unnecessary. Speaking regarding the removal of colouring-matter by means of the purified charcoal, he said that that greatly depended upon the nature of the colour. Although Mr. Hodgkin's results might be correct—and he thought they were—it was well to note they were quite contrary to the statements of the text-books.

The PRESIDENT said that that statement by Mr. Dott did not quite tally with the experience of sugar-refiners. Charcoal might be burnt over and over again, until it was grey, and yet it decolorised sugar-solutions.

Mr. DOTT agreed. Indeed, a sugar-chemist had told him that it was very much a matter of the state of division in which the charcoal existed; if it were fine, then it did not decolorise.

Mr. M. CONROY said that some time ago he went over part of the ground which Mr. Hodgkin had now covered. In the main he came to the same conclusions, although he did not work them out so accurately. The quantities that he thought yielded him the best result—of course, he could not get anything like the B.P. article—the best quantities of hydrochloric acid and water that he found in use were 3 parts of acid and 3 parts of water to 1 part of charcoal, and with double treatment. By working with those quantities he got charcoal which yielded 16 per cent. of ash. In reference to decolorisation he said he had found that freshly precipitated phosphate of lime had considerable decolorising properties, and those properties were even superior to the charcoal of the Pharmacopœia. He thought for the purpose of decolorisation crude charcoal was the best; he always obtained the best result from that.

The PRESIDENT: Would not similar results be obtained by hydrate of alumina?

Mr. CONROY: I have not tried that.

Mr. T. TYRER said he should like to confirm the results Mr. Hodgkin had so clearly put before them. There always had been a difference of opinion as to whether the decolorising effect was due to the carbon or to the phosphates, or to the peculiar mechanical condition of the carbon and phosphates intimately mixed. With regard to *Carbo animalis*, B.P., he had lately had numerous applications for animal charcoal, B.P. 1867. He confessed to having studied very carefully the meaning of the definitions in the Pharmacopœia of 1867 and 1885, and he could not see any practical difference. He told those who applied very plainly that there was no difference between the 1867 and 1885. He emphasised the necessity for more hydrochloric acid and for high temperatures. He awaited with interest Mr. Hodgkin's paper on the decolorising effect. He had learned that in the question of decolorisation-standards for saccharine fluids caramel had given way to solution of rose-aniline.

Mr. MACEWAN thought that caramel was probably not the best colouring-matter which Mr. Hodgkin might have selected, for, as pointed out by Dr. Inglis Clark some six or eight years ago, that colouring-matter was driven out of solution by simple mechanical action in discharging aërated ginger-ale from a syphon.

The PRESIDENT said it was problematical whether charcoal would have the same decolorising power upon indigo as it had upon burnt sugar and rose-aniline. That was a question which they could not decide.

Mr. MARTINDALE said that the necessity of having animal charcoal free from calcium phosphate for decolorising was shown in treating solutions such as citrate of potash. These, before crystallisation, were somewhat dark in colour and it was customary to filter through animal charcoal, the result of this being that the citrate dissolved more of the calcium phosphate and a yellow-coloured solution was obtained which on evaporation contained calcium phosphate.

Mr. BIRD asked if Mr. Hodgkin could explain one difficulty which he had met with in decolorising solutions of citrate of ammonia and acetate of amyl. These were freed from their organic colouring-matter, but on filtration were found to be coloured slightly yellow with a soluble iron salt. How was it that, after treating the charcoal with hydrochloric acid, and so dissolving out all soluble iron, there was still some left which citrate of ammonia would remove?

Mr. JOHN MOSS supported what Mr. Hodgkin had said. He took it that Mr. Hodgkin's idea was to bring the Pharmacopœia in a line with what was practicable and reasonable. The heat of a hot room was quite sufficient for drying the charcoal.

Mr. HODGKIN then replied. He said, regarding the soluble iron found in the charcoal, that, although mineral acids ceased to dissolve iron out of it, there was some left which was soluble in organic acids, especially lactic acid. He preferred his own proportions to those mentioned by Mr. Conroy as less were used and the results were equally good; and regarding the remarks which had been made about decolorisation, he said he selected caramel because litmus was so very variable in tinctorial power and because indigo also never gave the same results twice. Caramel, on the other hand, worked well. But the point of his paper really was that the B.P. process did not produce the B.P. article, and that animal charcoal B.P. of commerce was not a charcoal satisfying the B.P. requirements; and, as he pointed out, before the condition of things could be made better, some alteration must be made. (Applause.)

A paper, of which the following is an abstract, was then read:—

STRYCHNINE SALTS.

By D. B. DOTT, F.R.S.E.

This note was suggested by the statement of the "Extra Pharmacopœia" that the acid sulphate of strychnine is the most suitable for hypodermic injection; and by Mr. Coull's note on the subject. Mr. Dott has examined the neutral tartrate, citrate, and the hydrochloride of strychnine. He finds the solubility of the neutral tartrate in water to be about 1 in 52, of the citrate 1 in 37, and of the hydrochloride 1 in 35½. The last mentioned, therefore, appears to be the best salt, whether regarded from the point of view of solubility, neutrality, or stability.

Mr. MARTINDALE said the objection to the tartrate was that it was a tartrate, and on that account was unsuitable for hypodermic solutions. He thought the hydrochloride was better, but he still preferred the acid sulphate, and regretted that in a recent edition of his book the solubility of the acid sulphate was stated as 1 in 32 instead of 1 in 62. The acid sulphate had the great advantage of dissolving more quickly than any other salt, and he favoured its use both for hypodermic solutions and for Pharmacopœia preparations. The objection to the hydrochloride was that it crystallised out.

Mr. GEORGE COULL said that Mr. Martindale still missed a very important point which he had stated in his own paper on the subject—namely, that the acid sulphate suffered dissociation in solution, so that one got in solution a neutral sulphate of strychnine and free sulphuric acid. That was proved by the amount of free acid varying with the quantity of the solvent. His friend Mr. Duncan (whom a Transatlantic journalist had described as "a level-headed Scotchman who had solved the strychnine difficulty")—(laughter)—who he regretted was not present that afternoon, had found the solubility of the hydrochloride to be 1 in 37, which agreed very closely with Mr. Dott's result. As to the acid sulphate he also wished to remind Mr. Martindale that a solution containing 1 in 36 crystallised, but 1 in 50 remained clear; so that he still had the opportunity of making it in his book 1 in 50 instead of 1 in 62 as he proposed to do. (Applause.)

Mr. LLOYD WILLIAMS said he had noticed that nitrate of strychnine had been recommended for use in India as a remedy for snake-poisoning, and asked if the solubility of that were known.

Mr. BIRD asked a similar question regarding the hypophosphite.

Mr. DOTT, in reply, said that he would not prepare a hypophosphite if a hydrochloride would answer the same purpose. He agreed with Mr. Coull, from general experience of alkaloids, that the acid sulphate would dissociate in solution. Nitrate of strychnine was a sparingly soluble salt.

Mr. TYRER said that the hypophosphite was soluble 1 in 20, and the nitrate was very sparingly soluble.

Mr. DAVIES then read a paper on

EUCALYPTOL AND EUCALYPTUS OIL.

By R. H. DAVIES, F.I.C., F.C.S., and THOS. H. PEARMAIN.

The authors in this paper communicated further notes on the investigation which they reported upon at last year's Conference. Messrs. J. W. Drysdale & Co. had placed a good supply of *Eucalyptus oleosa* oil at their disposal, and taking advantage of the cold weather in February, they prepared eucalyptol by freezing. They found that with a mixture of snow and salt they could keep as much as 1 and 2 lbs. of the oil at −18° C. for an hour or two. Samples of *E. cneorifolia* (so-called *E. oleosa*), *E. Dunosa*, and *E. Globulus* were so treated, and the frozen cake of eucalyptol was submitted to pressure, and after liquefaction again frozen. Out of 75 c.c. of this 69 c.c. distilled at 174·5° C., at which the boiling-point of eucalyptol may be fixed, and optimetric examination showed the sp. rot. pow. to be $[\alpha]_D$ 0·08, or −4·8 for a 100 mm. tube, which is a slightly smaller rotation than the authors recorded last year of a "pure" specimen. The crystals melted at 0·0° to 0·5° C., and solidified again at −1·0° to +0·0° C., and the specific gravity was 0·9275 at 15·5° C., 0·9216 at 25° C., and 0·891 at 100° C. These latter factors thus confirm the statement that eucalyptol is identical with cineol, as the latter has a specific gravity of 0·927 at 16° C. The authors were very careful by corroborative experiment to ensure that these figures are correct. In regard to the freezing some experiments were made with mixtures of eucalyptol with *E. amygdalina* oil (which does not contain eucalyptol) with a view to ascertain how far the presence of a diluent affects the amount of eucalyptol crystallising out, and the result was that a mixture of equal parts of the oil and eucalyptol did not freeze at −21° C., although 66·25 parts of eucalyptol and 32·75 parts of the oil did freeze. When alcohol took the place of the *amygdalina* oil the results were much the same, and on the whole it appeared that although much of the eucalyptol can be removed from oils containing it by freezing, yet 60 per cent. of it still remains in.

In the next part of their paper the authors spoke of the iodine absorption by Hübl's method, which they then regarded as *nil*, and have since confirmed, of the solubility of salicylic acid in the oil as a means for detecting turpentine. In this latter case they found *E. cneorifolia* oil 3·17 parts dissolved 1 part of salicylic acid; the addition of 10 per cent. of turpentine increased the former factor to 3·51 and 50 per cent. increased it to 6·68 parts. It seems, therefore, that the test is not of great value for eucalyptus oil, especially that containing much eucalyptol. One part of salicylic acid dissolves in 2·55 parts of pure eucalyptol.

Mr. Dott said that the most interesting point of the paper was the settlement of the boiling-point of pure eucalyptol, regarding which there had been much difference of opinion, as every worker seemed to give a figure which best suited the purpose of some advertised oil.

Mr. Groves asked if the value of eucalyptus oil really depended upon the eucalyptol which it contained. He had noticed that eucalyptol differed very sensibly in odour from eucalyptus oil, which was agreeable to smell.

Mr. Davies, in reply, said that he had made no experiments of any kind, and, as far as he was aware, no physiological experiments had been made by medical men as to the comparative medicinal value of eucalyptol and the oil. But he would say that the fact remained that eucalyptol was a large constituent portion of the oil, and the only portion which was used by itself. He had made eucalyptol from ol. cyni—that is, oil of wormwood—and from cajuput oil, and the more he purified them the more identical they became with eucalyptol from eucalyptus oil.

The President then called upon Mr. Gerrard to read his paper, but

Mr. McLaren, the Convener of the Excursions Committee, protested against this paper being proceeded with. He said that it wanted but five minutes to 4 o'clock, and the brakes were waiting to take the party to Roslin, and he thought that the Conference should now adjourn.

Mr. Kemp, of Manchester, protested against this course. The proceedings were down to last till 4 o'clock, and it was yet ten minutes to that hour.

The President replied that he was in the hands of the meeting, and as it was evident that Mr. McLaren's proposal found most favour, the Conference was adjourned for the day.

WEDNESDAY'S PROCEEDINGS.

On Wednesday morning a change was effected in the interior of the room. The President's platform was shifted round to the side, and the chairs placed in front of it, this being with the object of improving the acoustic properties of the room. It was an improvement, and the thirty or forty members present at 10.10 appreciated the President's reference to the change. Mr. Stanford added that he would depart slightly from the order of the programme, and would take first the paper on

Ung. Hyd. Nit. Oxyd. B.P.

By Frederick Davis.

According to the present British Pharmacopœia, this ointment is ordered to be prepared with hard and soft paraffins in the proportion of three parts of the latter to one of the former. It will be remembered that the directions appended to the formula are as follows:—"Heat the hard and soft paraffins together, and when the mixture in cooling begins to thicken, add the oxide of mercury in a glass or porcelain mortar and mix the whole thoroughly." No further instructions with regard to cooling the ointment are given. In practice, however, it is found that the resulting ointment is frequently lumpy, probably brought about by too rapid cooling. Of twelve samples of this ointment obtained from an equal number of sources, eight were found to be more or less lumpy; but it is pleasing to be able to state that in all cases the quantity of active ingredient came out to within a fraction of a grain of the amount prescribed. Nevertheless, it may be considered that a lumpy ointment is an unsatisfactory one, and, therefore, I venture to suggest that pharmacists should in all cases cool this ointment slowly. Such a course can be easily adopted by standing the vessel containing the cooling ointment in another vessel containing warm water, giving the ointment an occasional stir until it has assumed a state of solidity sufficient to prevent the hard paraffin from separating out. It appears to be rapid cooling which renders the ointment lumpy, and therefore the presence of the warm water in the outer vessel cooling slowly obviates this. I have found practically that an ointment which has once become lumpy in the manner indicated cannot be rendered satisfactorily smooth, even by continued rubbing either upon a slab or by the aid of the pestle and mortar. It would appear that ung. hyd. nit. oxyd. has a peculiar tendency to become lumpy in this way—much more so than other B.P. ointments in which the basis is the same. I have, therefore, restricted my remarks to this ointment only.

Mr. A. W. Gerrard said there was not much new in this, for attention had been drawn to the difficulty in The Chemist and Druggist some years ago, and the recommendation was then made to add a little soft paraffin or of an oil to the ointment, as well as to cool gradually and stir constantly.

Mr. T. Maben thought it was quite unnecessary to add soft paraffin or oil to the ointment, which required no alteration whatever, but simply care in stirring while it is cooling.

Mr. T. F. Abraham said he took this opportunity of protesting against any extension of the use of hard and soft paraffins for ointments. Such preparations were very objectionable in use, and the objections were well shown in the case of boric-acid ointment. When applied to a wound the soft-paraffin part of this ointment slowly melted and exuded away, leaving the solid and irritating mass of hard paraffin upon the wound. It was difficult to remove that mass. An ointment made with lard, with or without paraffin, has not this objection.

Mr. Gerrard asked the indulgence of the Chair while he explained that Mr. Abraham's objection to boric-acid ointment was not altogether right. Sir Joseph Lister's object in making the ointment of the consistence which it is, was to have a protecting ointment, and his own experience in making large quantities was that the ointment can be produced easily—viz., by stirring from three to four hours, so as to get a nice soft ointment with a lot of air in it. This ointment was soothing when applied, well adapted for the designed purpose, and produced no irritation.

Mr. Naylor then read an abstract of the following paper:—

Podophyllum Emodi.

By John C. Umney.

This Himalayan drug has been imported recently in some quantity, possibly owing to the favourable opinion of its value, based on the amount of resin it contains, expressed by Dymock and Hooper (*Pharmaceutical Journal*, 3, xix). The constituents of the resin have been examined by T. A. Thompson (*American Journal of Pharmacy*, vol. lxii. p. 245), who states that it contains 25 per cent. more podophyllotoxin than the resin of *Podophyllum peltatum*. Subject to the confirmation of the results of these workers, Dr. Attfield has recommended the inclusion of the rhizome of *P. Emodi* as a source of podophyllin resin in the next edition of the Pharmacopœia. One would naturally expect, from the figures obtained by Thompson, the resin of *P. Emodi* to be more active physiologically than that of *P. peltatum*; but that does not prove, upon repeated trial, to be the case. An examination of the constituents of the resin has, therefore, been made following the lines detailed by Podwissotzki in his examination of the resin of *P. peltatum*.

The resin was first extracted following the pharmacopœial process for the preparation of podophyllin resin, and found to be equivalent to 11·4 per cent. The resin thus obtained was then treated by the various methods recommended by Podwissotzki and the following constituents isolated:—

Crude podophyllotoxin, which consists principally of picropodophyllin in solution in picripodophyllic acid, and to which the activity of the resin is said to be due, and was found to be present to the extent of 17 85 per cent.

Picropodophyllin was isolated in fine silky needle-shaped crystals, resembling caffeine in appearance, which melted after recrystallisation at 208°–210° C., and is undoubtedly identical with the crystalline substance obtained by Podwissotzki from *P. peltatum*, which melted at 200°–210° C. The quantity was small, and amounted to 2·6 per cent. of the resin.

Picropodophyllic acid was obtained by treatment of the crude podophyllotoxin with ammonia, but considerable difficulty was experienced in purifying the acid owing to its ready decomposition. In this respect it agrees closely with the similar body obtained by Podwissotzki from the resin of *P. peltatum*.

Podophyllic acid (melting-point 125° C.) was separated by precipitation from chloroformic solution by ether to the extent of 30·8 per cent., and it is to this inert acid that Thompson has applied the name of podophyllotoxin. This different application of the name given by Podwissotzki to the active ingredient of the resin has led to misconception.

Podophylloquercetin agreed in every respect with that separated by Podwissotzki from *P. peltatum* and melted after sublimation at 248° C.

Fatty matter was removed from the resin by petroleum ether, and was found to differ from that obtained from *P. peltatum* by being non-crystalline and semi-fluid at ordinary temperatures.

Podwissotzki in his examination of the resin of *P. peltatum* makes no mention of the proportion of the various bodies separated therefrom, and on this account experiments under similar conditions have been made on a sample of resin from the rhizome of this species to determine its relative composition.

	P. Emodi	*P. peltatum*
Resin by official process for podophyllin resin ..	11·4 per cent.	5·9 per cent.
Podophyllotoxin (crude)	17·8 per cent. of resin	33·8 per cent. of resin
Pure crystalline picropodophyllin	2·6 ,, ,,	4·5 ,, ,,
Picropodophyllic acid ..	not determined	not determined
Podophyllic acid	30·8 per cent. of resin	6·9 per cent. of resin
Podophylloquercetin ..	1·3 ,, ,,	2·4 ,, ,,
Fatty matter	2·3 ,, ,,	5·7 ,, ,,

The near relationship of the two species is evidenced by the close agreement in character of their several constituents, but the value of *P. Emodi*, dependent on the larger quantity of resin which it contains, is counterbalanced by the smaller proportion of the active ingredient present in that resin. Hence it seems undesirable that *P. Emodi* should be employed as an alternative source for the preparation according to the official process of podophyllin resin.

The PRESIDENT said that this was a very valuable paper, and deserved more time than they could give to it.

Mr. MOSS said he could not add much to the paper except to corroborate Mr. Umney's observation that the yield of resin from *Podophyllum Emodi* is larger than from *P. peltatum*, and although the former resin was more active sometimes, it was uncertain and could not be depended upon. For that reason he agreed that it was undesirable to officialise it.

Mr. RICHARD REYNOLDS said there could be no confusion in collecting these two species of *Podophyllum*. He had them growing in his own garden, and the *P. Emodi* leaf became of a brilliant red colour, while the *peltatum* remained green.

AN AMERICAN VISITOR.

The PRESIDENT said that they had present that morning a distinguished visitor, Professor L. E. Sayre, Dean of the Faculty of Pharmacy in the University of Kansas, and a member of the United States Pharmacopœia Committee. He was sure they would all bid Professor Sayre a hearty welcome, and he would ask Mr. Sayre to come up to the platform. (Hear, hear.)

Professor SAYRE walked up amidst applause, and on this subsiding he said that it gave him a great deal of pleasure to be present that day. When he left the States on June 4 he arranged his programme with a view to being at the Conference, as the proceedings had a direct bearing upon the revision of the U.S. Pharmacopœia. That revision had now been going on for two years, and by the time he got back to America he hoped that part of the work would have gone to press. It was his great regret to hear that since he had come across his esteemed friend, Professor Bedford, had passed away. He desired to thank the meeting for the welcome which had been extended to him, and trusted that the remainder of the meeting would be pleasurable and profitable. (Applause.)

The meeting then proceeded to the consideration of the next paper, on

A NEW METHOD FOR THE ESTIMATION OF GRAPE-SUGAR.

By A. W. GERRARD, F.C.S., Teacher of Pharmacy to University College.

About the time Professor Sir Joseph Lister introduced his latest antiseptic—the so-called double cyanide of mercury and zinc—some experiments were made by me to prepare other double cyanides. Among the results the most striking was the formation of a colourless double cyanide of potassium and copper. Knowing the power of alkaline cyanides to dissolve certain oxides, it was thought probable this new compound might act as a solvent of cuprous oxide. Such was found to be the case; likewise it could be added to Fehling's solution to prevent the precipitation of that oxide during the estimation of grape-sugar.

To prepare this salt a 10-per-cent. solution of the purest cyanide of potassium is slowly poured into a 10-per-cent. cold solution of copper sulphate until the mixture is colourless. The chemical changes which occur during the progress of the reaction are evidently of a complex character, as is well shown by the various coloured products obtained during admixture of the two salts. On adding the cyanide to the copper-salt a pale-green precipitate first appears, which soon darkens, becoming brown; the precipitate then gradually dissolves, leaving a solution of a purplish-red colour which a few drops more cyanide solution finally renders colourless. To obtain the salt in a crystalline form the solution may be slowly evaporated over sulphuric acid, when crystals of sulphate of potassium are first deposited; on removal of these the mother liquor, on further evaporation, yields transparent crystals of the double salt. After a number of experiments it was found that cyanide of potassium might, under certain conditions, be added direct to Fehling's solution with the same result as using the double salt, and trouble thus avoided. It should be pointed out that cyanide of potassium is not merely a solvent of cuprous oxide, for it cannot be added to Fehling's solution without forming the double salt referred to, consequently, an additional amount of copper sulphate must be added to satisfy the wants of the cyanide as the following experiments demonstrated:—

1. To 1 vol. Fehling's solution enough cyanide of potassium was added to just remove its blue colour. On boiling a portion of this with grape-sugar it gave no result.

2. Another volume of Fehling's solution was just decolourised by potassium cyanide and mixed with a second equal volume of Fehling; a portion of the product on boiling

with grape sugar give no precipitate, but there was a steady disappearance of the blue colour. On estimating the amount of copper available for reduction in this solution, or, what is the same thing, its glucose value, it was found that 10 c.c. was reduced by ·025 gramme glucose, whereas 10 c c. of Fehling is reduced by ·05 gramme of glucose, thus showing a loss in copper or sugar value of 50 per cent., a loss due to the combination of half the copper with the cyanide.

3. In this experiment Fehling's solution was prepared with twice the ordinary quantity of copper sulphate and then divided into two equal volumes. One volume was just decolourised with potassium cyanide and mixed with the second volume. A portion of this on estimation proved to have approximately the same value as Fehling's solution—that is, 10 c c. equals ·05 gramme glucose. During reduction it gave no precipitate, but a gradual passage from blue to colourless.

4. This experiment was made to ascertain the effect of both excess and deficiency of cyanide in the solution. With excess the sugar value of the Fehling was lowered. With deficiency the result was peculiar, yet quite consistent with circumstances. On running in the sugar solution on to the boiling-test solution, the blue colour faded up to a certain point, when a yellow precipitate began to appear, and continued to form till reduction was complete.

These experiments formed the basis upon which the construction of a formula for the new solution was founded. It was evident therefrom that cyanide of potassium must be used in definite quantity, likewise that if the solution was to have the same value as Fehling's solution, it must contain twice as much copper sulphate as the latter. For the purpose of determining the amount of cyanide of potassium required to unite with the extra copper, 100 c.c. of Fehling's solution was made with double its ordinary quantity of copper-sulphate. To this was carefully added just enough cyanide of potassium, of 98 per cent. strength, to bring its reducible copper value to that of Fehling's solution. After several experiments, it was found that the 100 c.c. required an average of 3·3 grammes of the cyanide, which quantity I have adopted for my formula. It should here be pointed out that as the best cyanide of potassium of commerce varies slightly in strength, a little more or less may be required. In my earliest formula I adopted the plan generally followed with Fehling's solution, that is keeping the copper-sulphate in one bottle, and the alkaline salts in another. It soon, however, became evident that cyanide of potassium could not be kept long in contact with caustic alkalies without decomposition and destruction of the test. This circumstance determined me to keep the cyanide apart from the alkalies, so that three solutions have to be used for an estimation. Following are the various formulæ for the solutions:—

Solution No. 1.

Take of

Sulphate of copper (recrystallised)	69·30 grammes
Distilled water to	500 c.c.

Dissolve.

Solution No. 2.

Take of

Tartarated soda (crystallised)	175 grammes
Distilled water to	500 c.c.

Dissolve.

Solution No. 3.

Take of

Cyanide of potassium (98-per-cent.)	33 grains, or a sufficiency
Water to	500 c.c.

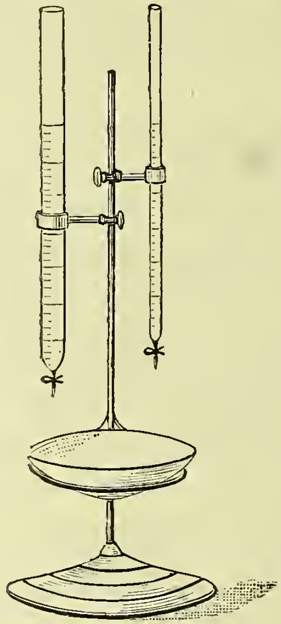
Dissolve.

For the purpose of testing the solutions, mix 5 c.c. of each with about 50 c.c. of distilled water, then boil. Whilst boiling run in a solution of grape-sugar until the blue colour is gone. If, during the reaction, any precipitate appears, more cyanide of potassium must be cautiously added to solution No. 3 until, on boiling again as above, it gives no precipitate.

I have employed these solutions for some time for the estimation of grape-sugar in urine, and the advantage which I believe may be fairly claimed for them over Pavy's solution is that the boiling can be done in an open dish, thus avoiding the use of a glass flask and long condensing-tube employed to condense the ammonia in Pavy's test. As compared with Fehling's solution the point gained is that the end reaction is very sharp, being merely a passage from blue to colourless. Those in the habit of using Fehling's test know full well the difficulty of determining with nicety the end of the reduction, by reason of the obscuring red precipitate which with urines weak in sugar is very slow to subside and not easy to filter.

I have named this test the Cyano-Cupric Test, and there is just one point more to remark on. After reduction with grape-sugar it soon oxidises, again assuming its blue colour. This, of course, should not be mistaken for incomplete reduction, as the same thing happens with both Fehling's and Parry's tests.

Mr. GERRARD practically demonstrated the utility of the process with apparatus such as is sketched below—viz., a porcelain dish for the test-solution. In this it is heated, and



while boiling the sugar-solution was run in from one of the burettes, which are graduated in percentages of sugar. When the end point is reached a precipitate begins to form and the blue colour of the test solution disappears.

The PRESIDENT said the method had the disadvantage of requiring three solutions.

Mr. A. H. ALLEN said he had listened with pleasure to Mr. Gerrard's paper, and, like the President, he was a little struck with that question of the keeping of the solutions. Potassium cyanide decomposed in solution, and as this salt was so highly important a part of the process, how were they to be certain as to the proper amount of cyanide added? If he followed Mr. Gerrard correctly the cyanide of potassium really was used as a solvent for the cupric oxide. Mr. Gerrard said there was no reduction of cupric oxide in the presence of cyanide of potassium. He thought that was a slip—he meant "no precipitation." Unless there was some easy means of regulating the strength and the necessary quantity used of this cyanide it seemed to him a difficulty. He fully appreciated the inconvenience of the ordinary Fehling's method. It had been said that an analytical method would find its own level. He was afraid that was not true of Fehling's solution. If Mr. Gerrard was able to overcome the difficulty in regard to the cyanide he could quite understand that the method was a very important one, and a decided improvement.

Mr. GROVES said he had used a method by which he added ferrocyanide of potassium to the ordinary Fehling's solution, and it had the effect of changing the colour of the precipitate from red to white. The object of the alteration was to show the end point more clearly, but he did not think it did.

Mr. **Martindale** said he feared that exposure to the air in the method before them would cause the same absorption which was found in Pavy's method. The necessity of using a flask was to prevent access of air. He noticed that the solution in Mr. Garrod's dish was becoming blue, which showed that it had that objection.

Mr. F. J. C. **Bird** said that some years ago there was a note in the "Year-book of Pharmacy," respecting the use of glycerine instead of the alkaline tartrate. He had found it very satisfactory indeed in practice.

Mr. **Grierson** said in the course of the reading of the paper he got the impression that they were going to have a great improvement on the old Pavy method. Fehling's method was almost inapplicable in ordinary pharmaceutical practice, Pavy's method being preferred on account of its sharp end reaction. The great objection to Pavy's method had been the care required in execution, and the somewhat complicated apparatus required. He was in hopes that the cyanide method would have got over the absorption which reproduced the blue colour; but it seemed to him that this was not so.

Mr. **Gerrard**, in reply, stated that what he meant in saying that no reduction took place was that there was no precipitation, and therefore no evidence of reduction. He also remarked in regard to the use of ferrocyanide that he had tried it, and many other salts, none of which, however, had the beneficial influence of potassium cyanide. Mr. Martindale had objected that re-oxidisation took place, but he would remind him that this was no objection, for the simple reason that the process was complete when the blue colour disappeared. At that point all the sugar had been estimated. (Hear, hear.) He did not believe that the addition of glycerine to Fehling's solution was at all good, and he might say regarding the keeping properties of potassium cyanide that he had had it in solution for three months and it had not changed in value.

The next paper was on

Potassium Bromide.

By D. B. Dott, F.R.S.E.

In this short paper the author gave an account of the analysis of three samples of the commercial potassium bromide. The following are the results obtained:—

—	A	B	C
Potassium bromide	98·241	97·415	93·401
„ chloride	·197	1·004	3·973
Water	1·010	·610	1·320
Undetermined	·552	·971	1·306
	100·000	100·000	100·000

As each of these passed the official tests, the author suggested that the amount of bromine actually present in the silver salt should be determined by passing chlorine gas over the fused salt until it ceases to lose weight. The loss in weight, multiplied by 1·7967, gives the bromine, from which datum it is easy to calculate the proportions of chloride and bromide present in the original salt.

The **President** thought it would be extremely difficult to reduce the percentage of chloride below what it was in Mr. Dott's figures. The first one would be an extremely pure commercial article.

Mr. E. J. **Parry** said that Mr. Dott had assumed that it was possible to allow adulterations in potassium bromide that would yield no reaction with silver nitrate, and thus allow an addition of chloride to bring up the titration result. But he appeared to have forgotten that potassium bromide crystallises in such a characteristic form that it allows of very little adulteration outside the halogen salts of the alkalis, which yield a precipitate with silver nitrate. Thus a sample of which 10 grains require 840 grain measures of the volumetric solution of silver nitrate could not contain more than traces of chlorides.

Mr. J B. **Stephenson** next read a paper on

Jambul: Its Influence on the Action of Diastatic Ferments.

By Thomas Stephenson, F.C.S., Pharmaceutical Chemist, Bombay.

The author of this paper stated that *Eugenia Jambolana*, Lam. (*Syzygium Jambolanum*, D.C.), is a very common tree in India, and the bark has long been used by the natives as a remedy for diarrhœa, being very astringent; and a syrup prepared from the juice of the ripe fruit, which is also very astringent, has also been used for a similar purpose. But it is as a diabetic-remedy that the drug has been used, and for which the natives of India have employed the seeds for centuries. Some doubt appears to exist as to whether this property is possessed in greater degree by the pericarp, or the kernel of the seed; as to what this active principle is, or what causes the action that these seeds appear to have on diastatic fermentation. The following experiments were made on the latter point:—

Twenty-one grammes of arrowroot, with 700 c.c. boiling water, cooled to about 100° F., was divided into seven equal portions, to each of which were added 2 grammes extract of malt. Various preparations of jambul were added, and the solutions kept for two hours at a temperature of 96° to 100° F., and the sugar estimated by means of Fehling's solution, with the result that the greatest influence over the action of the diastase was found to be possessed by a preparation of the fresh kernels by a process avoiding the use of heat. So far as this property is connected with their medicinal action, therefore, it follows that such preparations would be most efficacious therapeutically. Next to that in efficacy came a liquid extract from fresh kernels. Experiment showed that 4 parts of steam-dried seeds represented 6½ parts of fresh seeds. The pericarps have a much feebler action than the kernels, and, as they represent about 7 per cent. of the entire seeds, it is advisable, both on economic and therapeutic grounds, to discard them in making any preparation of the drug. The relative influence which the various forms of the drug possess on the formation of sugar may therefore be tabulated as follows, the figures representing the amount of sugar which would have been formed in their absence:—Old seeds, 0·00; pericarps, 0·05; fresh kernels, 0·28; old extract, 0·00; fresh kernels, with heat, 0·18; and steam-dried kernels, 0·11. The author stated, in conclusion, that we have here some explanation of the very discrepant results which have appeared with regard to jambul and its action in diabetes. There can be no doubt that in the majority of cases old seeds have been used; while the probability that the extraction was made by heat in cases where preparations of the drug were employed is equally great. A preparation of jambul, to represent its full medicinal activity, should therefore be made from fresh seeds, discarding the pericarps; and heat should be avoided. A weak alcoholic menstruum extracts the constituents, making an active and stable preparation; and a liquid extract may be made by percolating with dilute spirit (25 per cent.) until about three-fourths of the product is obtained, setting this aside, and exhausting with water, finally evaporating the weak percolate to small bulk, to make up the amount represented by the drug.

The **President** said the Conference would receive this paper gladly, since it was read by the President of the last meeting in Scotland—(hear, hear)—and further, that it was the result of an investigation by his son.

Mr. **Richard Reynolds** said the subject of jambul had recently been referred to an investigation committee of the British Medical Association for full inquiry, and the general result of their inquiry was that the use of jambul in diabetes was a field which should not be neglected, but instead of administering it in 1-drachm doses as had been the custom, the committee recommended that an ounce of the powder should be given in the course of a day. He thought that Mr. Thomas Stephenson's investigation was much in advance of anything that had been published in England.

Mr. **Grierson** was not inclined to attach much importance to the action of jambul in preventing diastatic fermentation, for, as he had shown the previous day, small amounts of chemicals greatly retarded the process; moreover, he was inclined to think that Mr. Stephenson was quite wrong in his conclusions on this point, so far as diabetes was concerned, as the question of diabetes was not to prevent the formation of sugar, but to ensure that the sugar, in passing through the liver, was converted into glycogen or such other products as were formed in normal health. Upon that factor Mr. Stephenson gave no information. (Hear, hear)

Mr. J. B. **Stephenson** said that the point of the paper was the relative value of different parts of the fruit, and Mr. Grierson quite overlooked that. The therapeutic efficacy of the fruit in preventing the formation of sugar was a secondary matter.

Mr. **Charles Arthur** stated that jambul had been used in the Edinburgh Infirmary, but up to the present they had obtained absolutely no good result, and he agreed with the results made by Mr. Grierson regarding the incorrectness of Mr. Thomas Stephenson's physiological data.

A paper was then read on

Experiments on the Alkaloids of Tea.

By Alfred H. Allen, F.I.C., F.C.S.

It is scarcely possible in an abstract to do justice to this paper, which was a record of researches which the author has been carrying on for some time in regard to the properties of caffeine, and the best means of assaying tea. After referring to the recent change in English fiscal arrangements, whereby the manufacture of the alkaloid has been transferred from Germany to England, Mr. Allen spoke of the effect of heat upon caffeine, showing that the heat of a water-bath served to give a distinct sublimate of the alkaloid. The amount was small, but it was sufficient to warrant extended experiment, with the result that heating at 120° C. the volatilisation from dry caffeine amounted to 0 32 per cent. at the end of two hours, and steadily increased to 19·42 per cent. at the end of twenty-nine hours' heating. This resublimed (anhydrous) caffeine melted at 231·5° C., and resolidified at 223° C. This alone proved the identity of the sublimate with caffeine, and corroborative experiment sustained this conclusion. But although dry caffeine volatilises when heated, a solution of caffeine in water on evaporation was found not to lose any of its alkaloid.

The author proceeded to show that caffeine is very sensitive to the action of alkalies, decomposing into caffeidine and carbonic acid, the base produced suffering secondary decomposition. Lime trimethylamine is found amongst the secondary products. The reactions which occur were in the paper traced with great minuteness, and all the factors influencing the opinions formed were quantitatively worked out with the general result as stated. Applying the knowledge gained of the behaviour of caffeine with alkalies to the isolation of the alkaloid, the author first pointed out that the great majority of published processes for the assay of tea are completely worthless, because they give very variable results, and even individual processes behave so in the hands of individual operators. It was necessary, before the author formulated an assay process of his own, that many other points should be taken into consideration. Thus the behaviour of aqueous solutions of caffeine on evaporation was studied, and it was found that the alkaloid cannot be completely crystallised out. The effects of solvents—chloroform, benzine, ether, alcohol, &c.—on tea and magnesia mixtures and the like were also studied, this branch necessitating an examination of all known processes of assay, and the results showed how very greatly the tannin in the leaf disturbs the operator. Paul and Cownley's process appeared to come out best: still, it was not perfect, and the following is the quintessence of the research:—

To assay tea, 6 grammes of the finely-powdered sample is boiled in 500 c.c. of water, contained in a flask with a reflux condenser, for six or eight hours. Filter, and wash the filtrate with water to 600 c.c. Heat to nearly boiling-point, and add 4 grammes of acetate of lead. Again boil in the reflux apparatus for ten minutes, whereby, on removing the heating-burner, the colouring-matter is precipitated in flocks. If the decoction is not colourless, add more acetate and repeat. Filter, take 500 c.c. of the filtrate (= 5 grammes [of tea), evaporate to 50 c.c. precipitate lead with sodium phosphate. Again filter, evaporate to about 40 c.c., extract the caffeine with four—or, better, five—washings of chloroform, and evaporate the washings. The caffeine is obtained in snow-white crystals.

The following are some of Mr. Allen's results:—

Description of Tea.	Per cent. of Caffeine.
Assam whole leaf (Pekoe)	4·02
,, broken ,, ...	4 02
Ceylon whole leaf (Pekoe)	3·85
,, broken ,, ... —	4·03
Java Pekoe	3·75
Moning black leaf	3·74
Moyune gunpowder	2·89
Natal Souchong	3·08

The last sample was the first imported into England from Natal. It contained 8 33 per cent. of tannin and 6 14 per cent of ash. Moisture, 8·36 per cent. Mr. Allen acknowledged his indebtedness to Messrs. C. M. Caius, G. F. A. Caius, and G. E. Scott Smith for assistance in the research.

The **President** said Mr. Allen had given them a most interesting and complete paper, and had gone into the matter with his usual minuteness and care. He would like to ask Mr. Allen if he had any grounds whatever for the idea that the active principle of tea may be a glucoside, and, if so, whether the addition of a little acid might not increase the yield. Perhaps Dr. Paul would also make some remarks on the subject.

Dr. **Paul** said that to some extent he could confirm the statements of Mr. Allen. With regard to the difference between the physiological action of caffeine and theine, Mr. Allen was mistaken as to what had taken place. The suggestion that there might be a difference between caffeine and theine was based upon a very slender observation made by Dr. Lauder Brunton and Prof. Cash, which was not at all followed up. The idea that there was any distinction between caffeine and theine in chemical or in physiological action was merely conjecture. Mr. Allen was quite right as to the chemical behaviour of caffeine or theine in stating that it might be dried at 100° C. with perfect safety. As to the action of lime or alkalies, and especially baryta, Mr. Allen was right in saying that caffeine might be decomposed by these. But in the analysis of tea no sane person would attempt to boil the tea with lime. He would use the lime in such a way as to do the work he wanted to be done, so as to extract the theine from the rest of the material without decomposing it. It could be done by mixing powdered tea with powdered lime, moistening with water, drying, and then submitting it to extraction. There was not a fraction of decomposition in that way of the caffeine or theine. The proper solvent, he thought, was alcohol; ether or chloroform would not do. The amount of theine obtained from different kinds of tea in that way was very considerably in excess of any of the previously published results. Mr. Allen also spoke of citrate of caffeine as a mixture. He thought that was in direct opposition to what had been established; it was a salt as much as any other salt. Mr. Allen had also referred to hydrolysis of caffeine when speaking of titration. To apply any method of titration to caffeine was out of the question altogether. His idea about the state in which caffeine existed in tea, and the state that determined the difficulty of extracting it, was not very definitely formed; but it was his conviction that some, at any rate, of the caffeine was so intimately associated either with colouring-matter or astringent substance that there was great difficulty in separating it. In the experiment that had been made on the table with sulphuric acid, in the charred deposit at the bottom of the glass there was practically the whole of the caffeine; they could not get it out. Of what Mr. Allen had laid before them, what was true was not new, and what was new was not true. (Laughter.)

Mr. T. F. **Abraham** asked, if caffeine was the active principle of tea, how did it happen that the universal verdict of users of tea throughout the world was that a few minutes sufficed to extract the virtue from the tea? Mr. Allen talked of the necessity of treating the tea for hours in order to extract the active principle. Were there not two principles? Was it the same principle which took hours for extraction as that which required a minute or two.

Mr. T. M. CLAGUE had always understood that in making tea the short infusion was adopted in order that as little as possible of the offensive principles should be taken. He had taken the quantity of caffeine that was supposed to be found in a given quantity of tea, and had found that he got no physiological effect with it commensurate with that obtained from the infusion made in a short time. It had occurred to him that it might be possible to split up that combination by something like a fermentation process, and so get out all the caffeine within a comparatively short time.

Mr. GERRARD said it was his experience with three samples of caffeine that if you took a piece of red litmus paper and just moistened it with water, and placed upon it a few crystals of caffeine, it would give a faintly alkaline reaction. Another point was the process Mr. Allen mentioned of using acetate of lead to precipitate colouring-matter, and adding phosphate of sodium afterwards to precipitate the lead. In that case he got, of course, some acetate of sodium formed in his solution, and he understood the author to say that acetate of sodium and similar salts were obstacles to the extraction of caffeine.

Mr. ALLEN: Obstacles to its crystallisation in water.

Mr. GERRARD: That, then, was satisfactory. There were some remarkable points about Mr. Allen's communication, and he was much interested in it.

The PRESIDENT said that Mr. Reynolds had just drawn his attention to the fact that caffeine was referred to in the Pharmacopœia as being neutral in action.

Mr. MARTINDALE protested against such a thing as citrate of caffeine being retained in the Pharmacopœia. It was a mere mixture of equal parts of caffeine and citric acid, and they wanted a definite salt, such as the hydrobromate. (Applause.)

Mr. ALLEN, in replying, said that his paper had suffered somewhat from the condensation necessary in reading it, hence some objections which had been raised would disappear when the paper was seen in full. He would not dispute Dr. Paul's assertion in regard to caffeine citrate being a definite salt, but he maintained that it was, and if Dr. Paul wanted more evidence on that point he would refer him to the *Pharmaceutical Journal*, ser. 3, vol. xix., p. 252, where it was stated: "The B.P. article [*i e*, the citrate] is generally regarded as an indefinite, unstable, inaccurately described, and superfluous preparation." (Great laughter.) After referring to the objections to the magnesia method, Mr. Allen maintained that Dr. Paul had given no proof that the caffeine could not be extracted from tea by boiling.

Dr. PAUL said the proof was that if, after extracting all the alkaloid from tea by boiling in water, the tea were dried, mixed with lime, and extracted with alcohol, more caffeine was extracted.

Mr. ALLEN, replying to the remarks by Mr. Abraham, said that in half an hour boiling water extracted 2·46 per cent. of caffeine and about double that quantity in six hours. It took seventeen days to do the same with cold water. Paul and Cownley's process was good up to 90 per cent. After that no more caffeine was extracted.

The next paper was on

TESTS FOR THE PURITY OF CHLOROFORM.

By DAVID BROWN, F.C.S.

The author, referring to the fatal accidents with chloroform, said that although these are attributed to impurities, an overdose, or an underdose (the administrators are never very sure which), there are no two opinions that chloroform for anæsthetic purposes should be of rigid purity. The B.P., unfortunately, does not ensure by its tests that it is so, as these tests enable considerable quantities of impurities to pass, and the author advocated a more careful system of testing. He believed that the sulphuric-acid and bad smell tests of the B.P. are reliable if modified suitably. The quantity of acid to be used with the chloroform should, with the quantity of the latter, be fixed. "A few drops" of chloroform are not enough to shake with the acid, or the nose of an expert may fail to detect impurity in the residue from "a few drops," although a novice would detect such a smell in the residue from an ounce. The author, therefore, suggested that (1) in the acid-test, at least 9 parts of chloroform should be shaken with 1 part of pure sulphuric acid continuously for twenty minutes, after which the acid is to be separated, diluted with 3 vols. of water, and any colour or foreign odour noted; (2) the fractional-distillation test already described by the author should be adopted instead of the B.P. smell-test—viz., to distil until 15 per cent. of the original quantity is left. Evaporate that at 80° 90° C., and then judge the odour; (3) that zinc iodide and starch be used to detect the first signs of decomposition; and (4) that the extent to which sulphuric acid decomposes chlorinated compounds be determined.

The author then proceeded to show how far commercial chloroform behaves towards these tests, and the following is a concise summary of his results:—

B P. Bad smell Test.

Scotch Chloroform.—Nine samples; one was "slightly bad," one "bad," and a third "very bad." The rest "no bad smell."

English.—Four samples; one "slight," and three "very bad smell."

German.—Three samples; two "bad," and one "no bad smell."

Modified Acid test.—Sixteen samples were tried, and of these three only gave no colour; eight gave shades of straw colour, and the rest were more distinctly coloured. On diluting the acid, three only were found to have no colour, the rest being shades of pink, and one only was free from odour; "tarry," "pine," "bitter almond," "vinous," and "fatty acid" being the characteristics, with adjectives, attached to the odours of the rest.

Fractional Distillation.—Under this test nine out of sixteen specimens came out in 115 per cent. residue with "no bad smell," but two only of these were free from smell on further evaporation, the rest being "bad," "burnt sugar," "vanilla," "wood tar," "creosotic" and the like. The residues varied from *nil* (in one case) to 1 from 1,946,100, to 1 from 202 663

Zinc Iodide and Starch.—Only one specimen gave a distinct coloration; the rest none.

The author also gave his estimates of the amount of chlorinated impurities present—viz., from 1 in 13,776 to 1 in 399,200—and in summing up said that Professor Ramsay's baryta-water test is, on the whole, preferable to the zinc iodide and starch one for the detection of decomposition, but he submitted that chloroform should not be condemned because it is old.

The PRESIDENT having invited discussion,

Mr. DOTT said he could not undertake to criticise by simply looking at the tables for a few minutes, but in regard to the statement by Professor Ramsay that carbonyl-chloride was the poisonous constituent of chloroform, he thought it would be very interesting to have the Professor's reasons for that statement. He had put the matter before a physiologist, who only smiled at the assertion that so minute a quantity of the compound would have the physiological effect averred by the Professor.

Mr. MARTINDALE said that Professor Ramsay had worked in connection with the British Medical Association's committee. He doubted Professor Ramsay's conclusion, but thought that the baryta-test might be useful. The great point Mr. Martindale considered for pharmacists was to ensure that chloroform was properly stored, that it should be kept in bottles as nearly full as possible, and not exposed to light. Still, after all, he felt that the dangers of chloroform were inherent in chloroform itself as much as in any product of decomposition.

Mr. W. G. CROSS put a question regarding a very bad and pungent odour which had developed in a Winchester of chloroform.

Mr. GROVES asked if the figures applied to chloroform prepared by the B P. process from rectified spirit. For himself, he thought that chloroform made extemporaneously from chloral was much to be preferred to the article distilled by the B.P. process.

The PRESIDENT asked Mr. Brown if some of the samples were obtained from acetone, to which

Mr. BROWN replied, "Yes."

It would be interesting, the PRESIDENT continued, to have the result of the examination of those specimens.

Mr. REYNOLDS also asked Mr. Brown to indicate which of the chloroforms had been prepared from methylated spirit.

Mr. GERRARD was of opinion that chloroform manufacturers were using their utmost endeavours to supply a pure article. He thought they must all know that carbonyl chloride was not itself a poison. There was no evidence of that. Although they aimed at absolute purity, it was not always possible to obtain that He had noticed that in distilling 200 c.c. the last few c.c. contained acetone, which he had proved by tests, but he would not condemn a chloroform of that kind.

Dr. INGLIS CLARK said that Mr. Gerrard's remarks were very opportune. It was now time, he thought, that doctors recovered from the scare from which they had been suffering lately. Doctors, and nurses, and other people had gone off their heads in regard to the impurity of chloroform. One day a sample would be submitted to them with the statement that it had no anæsthetic power, and the very next day a sample of the same chloroform would be sent to them with the statement that it was a deadly poison, and that the mere smell of it was sufficient to kill a person. All that was hysterical nonsense, and seemed to show that there was something else than the purity of chloroform behind it all. It was the experience of manufacturers that men all over the kingdom had become old wives on this subject. One man said that he gave 6 oz of chloroform without producing the slightest effect, while 2 drachms of the same article would send a patient off the next time. He considered this aiming at absolute purity very bad, for this reason—that chloroform was an exceedingly sensitive substance, and the more it was heated and distilled the more they were apt to break down the molecule and give rise to contamination. What he thought should be done was—first, to ensure by proper methods of purification that the chloroform was right, and then not to be sparing with the alcohol, but to add 1 or 2 per cent. of it in order to be able to be absolutely sure that it would keep. There was no use in trying to see how little would do that. (Hear, hear.) If all that was said about the impurities of chloroform were true, it followed, as a matter of course, that these impurities were more highly poisonous than concentrated hydrocyanic acid or aconitine, which was perfectly ridiculous. Carbonyl chloride was not a poison: he had inhaled it many a time with no bad effect.

The PRESIDENT said he thought they must agree that the baryta-test of Professor Ramsay's must be added to the Pharmacopœia. Professor Ramsay found carbonyl chloride in chloroform which had been used in a fatal case. He afterwards made the substance from absolutely pure chloroform; he was certain of the purity. It boiled to $\frac{1}{100}$ degree of the accepted figure, and by oxidation he produced carbonyl chloride. He considered that it was quite proved that it was carbonyl chloride which produced the fatal case—that it closed the glottis, and in that way produced death.

Mr. A. H. MASON said he had been told often and often by medical men that it was only in Scotland that they knew how to administer it. They were told to-day that English and Scotch and German chloroform had certain properties or certain defects. He would like to be sure that German chloroform was not of English manufacture. He noticed in the second table given that there was a smell of almonds about one sample. He believed almond-meal was used for luting the stoppers of bottles, and that was probably where the smell of almonds had come from.

Mr. BROWN said that the sample Mr. Mason referred to had no luting of any description upon it. With regard to the presence of carbonyl chloride he could speak from experience that it was a most irritating substance to inhale, and for that reason it would be so noticeable in chloroform in use that he did not think there would be any danger of it causing death. As regards the samples they were from acetone, alcohol, methylated spirit, ketones, and chloral hydrate. He believed perfectly pure chloroform could be prepared from any of these. He might, however, say that the present sample, and the only one that answered all the tests, was a sample prepared from acetone. He acknowledged the correctness of the 1·497 specific gravity in the B.P., and did not think it was necessary to reduce it further. (Applause.)

MASSACRING THE INNOCENTS.

At this stage members adjourned for luncheon, and on resuming an hour later, twenty papers faced them, and a new order of proceedings had to be instituted. There were two dozen members, or thereabouts, present at the start, but as the afternoon proceeded the attendance increased to over a hundred.

Mr. NAYLOR read the first paper which was on

VORTMANN'S TEST FOR HYDROCYANIC ACID.

By H. BOWDEN.

G. Vortmann ("Monatshefte für Chemie," vii., 416, 417) gives a test for detecting traces of hydrocyanic, which is mentioned in the Blue List No. 42, and in the "Year Book of Pharmacy," 1887, page 124. To the sample suspected a few drops of potassium-nitrite solution and 3 drops of ferric-chloride solution are added. A yellow-brown precipitate forms. Dilute sulphuric acid is added in sufficient quantity to dissolve the precipitate to a yellow solution; the whole is boiled, cooled, and the iron removed by a drop or two of ammonia. The mixture is then filtered, and to the filtrate a very dilute solution of ammonium sulphide is added. A pink-purple colour is produced, which soon changes to blue and remains blue for some time, then changing to green and lastly to pink-purple, the colour not being so deep as the first. Qualitative experiments showed the test to answer very well.

Quantitative experiments were then made. First the strength of the dilute hydrocyanic acid used for the experiments was obtained by precipitating a weighed quantity of a dilute hydrocyanic acid with silver nitrate, and weighing the silver cyanide produced.

Determination A. Weight of HCN taken = 6·3955 grammes. Ag. CN obtained = ·5945 gramme.

Determination B. Weight of HCN taken = 13·2322 grammes. Ag. CN obtained = 1·224 gramme.

A. Real HCN per cent. = 1·87
B. Real HCN per cent. = 1·86.
Mean = 1·865 per cent.

Experiment *a*: 2 c.c. of the above acid was diluted to a litre with water, and 1 c.c. examined by Vortmann's test. Result—a deep pink-purple colour, soon changing to blue; most distinctly visible. Amount of real HCN detected = 0·0000373 gramme.

Experiment *b*: 1 c.c. of the dilute acid was diluted to a litre with water, and 1 c.c., examined by Vortmann's test, gave a most distinct pink-purple colour, the blue being less distinct. Amount of real HCN detected = 0·00001865 gramme.

Experiment *c*: 0·5 c.c. of the dilute acid was diluted to a litre with water, and 1 c.c., examined by Vortmann's test, gave a pale but distinct pink-purple colour, changing in about two minutes, the blue being invisible or nearly so. Amount of real HCN detected = 0·000009325 gramme.

Experiment *d*: ·25 c.c. of the dilute acid was diluted to a litre with water, and 1 c.c., examined by Vortmann's test, gave a very faint pink-purple colour, vanishing in less than a minute, the other colours not being perceptible. Amount of real HCN = 0·0000046625 gramme.

It follows from these results that 0·00001865 gramme of HCN (experiment *b*) ought to be detected easily by those who perform the test for the first, as it is so delicate and easily performed.

The test is applicable to cyanides as well as free HCN.

There was no discussion on this paper.

Next Mr. RANSOM read an abstract of a paper on

BARBADOES AND CURACAO ALOES.

By E. M. HOLMES, F.L.S.

This paper dealt with the origin of these kinds of aloes. After referring to the great divergence of opinion amongst authorities, he said he had arrived at the conclusion that the aloes of Curaçao was probably modified to some extent by an admixture of the juice of the leaves of *Aloe spicata* and *Aloe succotrina*, but this conclusion is disputed by Senor S. C. Henriquez, who manufactures aloes at Curaçao. This gentleman sent him six specimens of Curaçao aloes, with a letter, in which he said:—"I have carefully prepared specimens of the aloe-plants of Curaçao, Aruba, and Bonaire, and also of the same plant growing at Coro, a neighbouring place in Venezuela, and could not trace any difference between the several specimens, and I am greatly inclined to believe the statement in 'Pharmacographia' that the aloe of Curaçao, Aruba, Bonaire, and Barbadoes, is the same plant. I have made the observation that much depends on the way the juice is treated. It yields a gum like the Barbadoes at times, at other times like the Cape or 'Capey Barbadoes,' and even in some cases a drug almost equal to Socotrine." Senor Henriquez also stated that in manufacturing aloes the juice mixed with four times its bulk of water. By boiling for a little while, and, after cooling, filtering it through flannel, a juice is obtained which, carefully inspissated, yields a drug of orange colour quite soluble in alcohol and free of all nauseous smell. If the juice, without any addition of water, be evaporated, keeping it constantly below boiling-point, and allowed to cool, when the moisture has been reduced to 10 per cent., gently stirring it during the process, and the stuff be cased at a temperature under 100° F., the paste will be uniform and after some time become dull. It will lose the original bad smell and become rather aromatic. But if boxed hot, the mass will separate, generally into layers of gum and resin; and it will, moreover, if the heat was excessive at the time of boiling, become and remain glossy and adhesive. If iron pans are used instead of copper ones, the powder obtained from the drug will have a greenish colour, and if the drug comes in contact with rust, all alkalis be not avoided, a black paste is produced. Samples of six kinds of aloes, prepared by Senor Henriquez, were exhibited, and their characteristics were described, these showing that aloes prepared by evaporation under boiling-point is blackish-brown in colour, vitreous and translucent, and like Barbadoes and Cape in odour. The powder is bright yellowish-brown. That evaporated on a sand-bath is reddish-brown, resinous and waxy, translucent, with a characteristic heavy, stramonium-like odour of Curaçao aloes, and the powder a dull yellowish-brown. Other samples varied from these main conditions according to such determining factors as the period of collection and the length of time the juice was kept before evaporation. Most of the specimens present the appearance known as "Capey" Barbadoes—that is, they possess the distinctive odour and conchoidal fracture of Barbadoes aloes, but have the vitreous lustre of Cape aloes. The specimens yielded from 69 to 82 per cent. of aqueous extract.

The PRESIDENT expressed his high opinion of the services which Mr. Holmes had rendered to the Conference by this communication.

In a rather low voice, and on a low platform, Mr. COULL followed with

QUININE PHOSPHATE.

By GEORGE COULL, B.Sc.

Having had occasion recently to ascertain the composition of quinine phosphate for a special purpose, I consulted the authorities accessible to me, and found a considerable divergence of opinion regarding its formula. Davies says the formula of the phosphate in Easton's syrup may, with high probability, be taken as $3(C_{20}H_{24}N_2O_2).2H_3PO_4$, but does not mention water of crystallisation ("Year-book," 1883, p. 571); Anderson supposes $3(C_{20}H_{24}N_2O_2)\,2H_3PO_4\,6H_2O$, and the correctness of his supposition is doubted by Gmelin ("Chemistry," vol. xvii. p. 276); Gerhardt gives $2(C_{20}H_{24}N_2O_2).H_3PO_4.2H_2O_4$ (Watts' "Dictionary," 1st ed. vol. v. p. 22); Hesse $2(C_{20}H_{24}N_2O_2).H_3PO_4.8H_2O$ (Gmelin, vol. xvii. p. 615); Stillé and Maisch (4th ed. p. 1291) give the same formula as Hesse, and state that the salt contains 75·85 per cent. of quinine, but the formula requires 72·82 per cent.

It was necessary, in the ordinary course of laboratory work, to determine with accuracy the formula of the phosphate of quinine in use, which was of standard English make, and obtained direct from the manufacturer. After completing the work, it occurred to me that the results obtained would be useful to others, and might appropriately be communicated to the Conference. With the view of adding to the usefulness of this note, a standard sample of German make, also direct from the manufacturer, was examined for comparison.

The *alkaloid*, which may be assumed to be quinine, was estimated by dissolving in water with the aid of hydrochloric acid, adding ammonia in excess, washing out with chloroform, evaporating, and drying at 110° C. till constant.

Phosphoric acid was determined by titrating a solution of the salt in dilute alcohol with $\frac{N}{10}$ soda solution, using phenolphthalein an indicator.

Water was determined by heating the salt at 110° C. till constant. It loses all its water at 100° C.; but the operation is considerably shortened at the temperature indicated.

The results obtained were as follows:—

—	English Quinine Phosphate			
	1	2	Mean	Theory
Alkaloid	75·14	75·20	75·17	76·18
Acid	16·16	16·24	16·20	15·36
Water	8·99	8·97	8·98	8.46
			100·35	100·00

The last column gives the theoretical percentage for the formula $3(C_{20}H_{24}N_2O_2).2H_3PO_4.6H_2O$.

—	German Quininine Phosphate			
	1	2	Mean	Theory
Alkaloid	79·27	79·41	79·34	79·22
Acid	12·17	12·17	12·17	11·98
Water	8·54	8·36	8·45	8·80
			99·96	100·00

The last column gives the theoretical percentage for the formula $2(C_{20}H_{24}N_2O_2)_2\,H_3PO_4\,4H_2O$. From these results we may conclude that the formula of the English salt is $3(C_{20}H_{24}N_2O_2).2H_3PO_4.6H_2O$, and that of the German $2(C_{20}H_{24}N_2O_2).H_3PO_4.4H_2O$. The fact that there are at least two phosphates of quinine will at once account for the different formulæ having been assigned to it. This difference in the percentage of alkaloid is a point of practical importance. In the B.P.C. formula for syrupus ferri, quininæ et strychninæ phosphatum, phosphate of quinine is ordered; but the Formulary gives no indication as to the composition of the salt to be employed. It would be a distinct advantage if a salt having a definite formula were specified by the committee.

BARIUM HYPOPHOSPHITE.

By GEORGE COULL, B.Sc.

This salt is included in the B.P.C. Formulary, and is ordered to be used in making liquor ferri hypophosphitis fortior and acidum hypophosphorosum. The Committee have been under the impression that the barium hypophosphite of commerce is hydrated, as it is said the salt should contain not less than 95 per cent. $Ba(PH_2O_2)_2.H_2O$. As the following experiments show, the salt of commerce is anhydrous, and if analysed for barium alone or hypophosphorous acid alone, and the amount of $Ba(PH_2O_2)_2.H_2O$ calculated, the results are very misleading.

Two samples were examined lately. Previous to the quantitative determinations qualitative analysis revealed the presence of calcium and a trace of chloride in both, the calcium being in larger quantity in No. II. than in No. I.

The barium, hypophosphorous acid, and water were determined twice:—

The *barium* by precipitating with excess of sulphuric acid in presence of hydrochloric acid.

The *hypophosphorous acid* by noting the reducing-power of the salt on excess of mercuric chloride in presence of hydrochloric acid. The amount of calomel formed is a measure of the hypophosphorous acid present, according to the following equations:—

$$\underset{66}{HPH_2O_2} + 4HgCl_2 + 2H_2O = H_3PO_4 + \underset{942}{4HgCl} + 4HCl$$

$$\underset{267}{Ba(PH_2O_2)_2} + 8HgCl_2 + 4H_2O = Ba_32PO_4 + \underset{1884}{8HgCl} + 8HCl$$

The *water* was estimated by heating about 1 gramme at 100° C. till constant. Theory for a *pure* hydrated salt requires 6·3 per cent.

The results are here tabulated:—

No. I	1	2	Mean
Ba	45·59	45·83	45·71
$(PH_2O_2)_2$	49·75	50·58	50·16
H_2O	1·25	1·15	1·20
			97·07
Ca	. . . Indirectly . . .		2·09
			99·16
No. II.	**1**	**2**	**Mean**
Ba	38·59	39·53	39·06
$(PH_2O_2)_2$	52·99	52·85	52·92
H_2O	1·23	1·13	1·18
			93·16
Ca	. . . Indirectly . . .		4·88
			98·04

These results are rather startling. In sample No. I. there is 6·65 per cent. more barium than in No. II., and 2·76 per cent. less of the acid radicle. This peculiar state of things puzzled me for some time, until it occurred to me that it was caused by the presence of calcium. The atomic weight of calcium being 40 and that of barium 137, the deficiency of barium in No. II. would be made up with calcium, which would combine with the excess of hypophosphorous acid.

Calculating accordingly, in No. I. the mean percentage of Ba 45·71 requires 43·37 (PH_2O_2) to form $Ba(PH_2O_2)_2$; this leaves $50·16 - 43·37 = 6·79$ PH_2O_2 to combine with calcium, of which it requires 2·09; therefore, adding 2·09 to 97·07 brings the percentage to 99·16, leaving a deficiency of ·84 for experimental error and a trace of chloride which was present.

Similarly No. II. contains 39.06 Ba, which requires 37·07 (PH_2O_2), and leaves 15·85 (PH_2O_2) to combine with calcium 4·88; adding this amount of calcium to the mean percentage previously obtained, gives 98.04.

If in an examination of this article (say sample I.) the barium alone be estimated, and calculated into the hydrated salt $Ba(PH_2O_2)_2 H_2O$, it will give a percentage of 95·08, which would apparently be up to the standard of purity required by the Formulary; but the salt is anhydrous, so that 95·08 $Ba(PH_2O_2)_2.H_2O$ is equivalent to 89·08 $Ba(PH_2O_2)_2$, and adding the water found, 1·2 per cent., the amount of barium, hypophosphite, and water is 90·28 per cent., leaving about 10 per cent. for impurities—*i.e.*, nearly twice the maximum amount of impurity allowed.

In the case of No. II. the figures are Ba 39·06 per cent. $= Ba(PH_2O_2)_2.H_2O$ 81·27 per cent. $= Ba(PH_2O_2)_2$ 76·14 per cent.; and adding the water found, 1·18, we get 77·32 per cent. of anhydrous barium, hypophosphite, and water. This is an extremely bad sample, containing fully four times the maximum of impurity. If the reducing action alone be noted, and the amount of calomel formed calculated into $Ba(PH_2O_2)_2.H_2O$, No. II., the worst sample, will appear to contain 116·1 per cent., and No. I. 110 per cent. Barium hypophosphite containing not less than 95 per cent. $Ba(PH_2O_2)_2.H_2O$ is used in making acidum hypophosphorosum, B.P.C., and among the tests is one for calcium. The acid should not, after neutralisation, give a precipitate with solution of ammonium oxalate, a result practically unattainable.

Therefore, in view of the variation which exists, and the fact that the commercial article is anhydrous, it seems desirable that the Formulary Committee order the anhydrous salt to be used, and raise the standard of purity in their discretion.

Phosphoric Acid.—The author having found that on dissolving iron wire in 1·750 phosphoric acid, and diluting the solution formed, filtration was exceedingly difficult, owing to the presence of suspended matter, he endeavoured to trace the source of the trouble. This he ascertained on experiment to be silica. Mr. Hodgkin, in his last year's paper, incidentally mentioned this contamination, and Mr. Coull now desired to point the moral again—not to evaporate phosphoric acid in porcelain crucibles, and to urge that the Pharmacopœia should direct that "when syrupy phosphoric acid is mixed with its own volume of water it should give no precipitate." That would exclude silica.

Mr. DOTT said he thought that Hesse's formula for quinine phosphate was the correct one, and Mr. Coull agreed with it, except as to the amount of water of crystallisation in the molecule barium hypophosphite. He had examined by the mercury process, and found it to be equal to 100 per cent. He did not imagine that the salt contained any water of crystallisation.

Mr. T. TYRER agreed that the presence of calcium and barium hypophosphite was not good pharmacy, and he pointed out that Mr. Dott's statement differed materially from Mr. Coull's. The subject recalled the discussion of the previous day on "Lithium Salts." He thought that, while manufacturers were not justified in sending out any article which was not of the degree of purity wanted, it was well to consider sometimes how far it was necessary to insist upon absolute purity. He judged from the figures that the barium hypophosphite, which was impure, had been made by the process of double decomposition, and that he considered a faulty process. As to the phosphoric acid, the small amount of silica present did not vitiate it much, and he reminded the meeting that the use of platinum basins for evaporating such articles necessitated a large expenditure in apparatus.

Mr. MARTINDALE said that Mr. Coull's notes had some bearing on the Unofficial Formulary processes, and he would assure him that they would have the full consideration of the Committee. He did not agree with Mr. Tyrer regarding what he had said about the purity of medicinal chemicals. As pharmacists they should not admit the presence of lead in citric and tartaric acids if they knew it was possible to obtain them free from that contamination. The same also applied to phosphoric acid.

Mr. TYRER said he did not differ from that view, and he maintained that manufacturers should supply what was demanded, but he would remind the meeting that manufacturers would have to be millionaires if they were to use platinum basins in the manufacture of such articles.

Mr. HODGKIN said that manufacturers did not wish to make articles which would scrape through, but those which were best suited for the purpose required. Sometimes increased purity meant increased cost, and that was a matter which the purchasers must face. Tartaric and citric acids free from lead had been produced in this country, and were still obtainable.

The PRESIDENT said that he must put an end to the discussion. (Hear, hear.) It was quite evident that the British Pharmaceutical Conference had no sympathy whatever with manufacturers. He was proceeding to call on the author of the next paper, when

Mr. COULL requested permission to reply; and he said that although Hesse was an older man than himself, still these were the figures which he had obtained by actually analysing quinine phosphate, and they agreed very well with the formula which he had put down. Mr. Coull also spoke, amidst considerable manifestations of impatience, upon the phosphoric-acid question, but the remarks did not reach the reporters' table.

The following were then read by the author:—

THE MELTING-POINT OF CACAO-BUTTER.

By T. MALTBY CLAGUE.

In connection with some experimental work on the influence of some drugs commonly used in suppositories and pessaries on the melting-point of cacao-butter, the results of which were published in THE CHEMIST AND DRUGGIST of June 6, 1891, the author examined a number of trade samples and showed that their melting-point varied from 74·5° F. to 91° F., as compared with the official 86° to 95°. A sample expressed by the author with heat gave 91° and by percolation with ether 83°. The subject was again entered upon owing to observation of statements by Redwood and A. H. Allen that some fats possess a two-fold melting-point—an original one, and one acquired after heating to a few degrees above melting-point. Samples were thus examined with the following results:—

—	Sample No. 1	Sample No 2	Sample No. 3
Original melting-point	75°	86°	85°
After being heated to 105°	77·5°	89°	86°
" " 120°	84°	85°	91°
" " 150°	85°	83°	92°
" " 180°	80°	80°	85°

The third sample was one prepared by percolation with ether from unroasted nibs, and from the results it would appear that cacao-butter undergoes a rise in its melting-point; that if temperature be further increased its melting-point becomes lowered to an intermediate one, which is maintained for a few days. The author therefore advised dispensers to note that fluctuations in the melting-point of cacao-butter can ofttimes be put down to the influence of heat only, and he cautioned them as to the use of cacao-butter in suppository-making which at all closely approximates in its melting-point to the temperature of the human body. He also recommended Redwood's method for taking melting-points.

DETERMINATION OF MELTING-POINTS BY CAPILLARY TUBES.

By T. MALTBY CLAGUE.

This paper arose from a somewhat curious incident experienced by the author. He had put a few ounces of cacao-butter into a beaker and proposed to melt the butter by placing the beaker in water a few degrees above the melting-point of the butter, and maintaining it at that; but he found that at ten degrees above the melting-point of the butter it had not become clear, although when he plunged a piece of feeding-bottle tube into the half-melted fat straightway the tube was filled with perfectly liquid fat. That led him to try other tubes, and the result was the following determinations of the melting-point of a theobroma-and-wax mixture with tubes of different diameters, a Hicks half-minute clinical thermometer being used:—

Tube of 0·12 in. diam. gave m.p. 103·8° F.
" 0·24 " " 105 "
" 0·42 " " 106·3 "
" 0·64 " " 110 "
" 1·26 " " 113 "

By Redwood's method the melting-point of the butter came out at 105° F. With much smaller tubes a sample of cacao-butter (m.p. 85° F.) was tried, after the diameter had been accurately determined. A tube of $\frac{1}{17}$ in. diameter gave 86° F., $\frac{1}{26}$ in. 83° F., $\frac{1}{30}$ in. 82° F., and $\frac{1}{50}$ in. 81° F. The author therefore felt justified in requiring of the Pharmacopœia better definition of "a capillary tube" and even more precise guidance than Attfield's size for such tubes—that of a knitting-needle, for such needles are of various sizes. He showed, further, that it is highly important, as Mr. A. H. Allen has suggested, that some time should elapse after the tube has been filled with the fat. What time should this be? The following results may assist in answering that question:—Tubes were filled with the m.p. 85° F. cacao-butter. Ten minutes after filling, the contents of one melted at 75°; 1¼ hour after, 85° F.; and twenty-four hours after, 90° F.

Mr. MARTINDALE, in opening the discussion, said he thought the difference of temperature might be accounted for in cacao-butter by the fact that it consisted of two different principles. There was, probably, stearine and oleine present, and the mixture of these two, if allowed to crystallise, lowered the initial point of the stearine had it been pure.

Mr. ALLEN said no doubt Mr. Martindale had hit the right nail on the head in saying it was a question, when they had a mixture of several bodies having different melting-points, that they did not know which one to take.

The PRESIDENT then called upon Mr. PETER MACEWAN to read an abstract of the following paper:—

THE SOLVENT ACTION OF ALCOHOL OF DIFFERENT DEGREES OF STRENGTH ON SOME OF THE DRUGS USED IN MAKING PHARMACOPŒIAL TINCTURES.

By E. H. FARR and R. WRIGHT, Pharmaceutical Chemists.

Tincture of Cinchona.

Cinchona-bark may almost be said to have been the "bête-noir" of pharmacy, and its preparations have received more attention at the hands of practical pharmacists than those of any other drug, except, perhaps, opium.

The difficulty, if not the impossibility, of effecting complete exhaustion of the drug by aqueous treatment, as also the consequent fact that neither the infusion, the decoction, nor the fluid extract represent the full medicinal activity of the drug from which they have been produced, has always been admitted. Conclusive proof of this fact, so far as the preparations of yellow cinchona-bark are concerned, was first afforded by Mr. C. Ekin, who, in a paper read at the Pharmaceutical Conference of 1878, showed that the fluid extract did not contain more than one-fourth, and the infusion and decoction not more than five-eighths, of the alkaloids present in the bark.

These results were substantially confirmed by Dr. B. H. Paul, in a note read at an evening meeting of the Pharmaceutical Society. As to whether a more satisfactory exhaustion of the bark is effected in the process of making the tincture, opinions have been divided.

Ekin, in the note just alluded to, stated that in working on a bark containing 2 per cent. of quinine the exhaustion was practically complete; Paul, on the contrary, asserted that from the marc remaining from the preparation of the tincture it was possible to prepare a second tincture equal in strength to the first; and this was confirmed by Braithwaite, who found that in making the B.P. tincture not more than half the alkaloids were extracted.

In the 1885 Pharmacopœia, owing mainly to the recommendation of Mr. E. M. Holmes and the late Mr. J. E. Howard, the bark of *Cinchona succirubra* was substituted for the Calisaya bark for the production of the galenical preparations of cinchona.

Since that time no experimental data showing the extent to which exhaustion is effected in the preparation of the decoction and the acid infusion have been published.

The tincture has, however, been submitted to examination by Mr. J. S. Ward, who, in a paper read before the Liverpool Chemists' Association, showed that commercial samples of the tincture only contained about 45 per cent. of the theoretical yield, calculated from the quantity of bark employed in its preparation.

In order to ascertain the degree to which the exhaustion of red cinchona-bark could be effected by means of an alcoholic menstruum, and also to find by what menstruum the most perfect exhaustion might be secured, thirteen specimens of the bark were obtained, and after being reduced to No. 40 powder a series of tinctures was made from each, by the B P. process, with alcohol of 90, 80, 70, 60 and 50 per cent. strength (by volume). All the specimens of drug employed were found to be fully up to the B.P. standard, and four contained a percentage of alkaloid in excess of that required by the B.P., the amount varying between 6 and 8·2 per cent. total alkaloids. In order to ascertain what method was best adapted for the estimation of the alkaloids, the following experiments were tried upon a standard tincture.

Experiment I.—Twenty-five c.c. of the tincture was acidified with dilute sulphuric acid, and evaporated over a water-bath until all spirit had been driven off. An excess of soda solution was then added, and the alkaloids extracted by agitation with benzolated amylic alcohol. From the latter solution the alkaloids were withdrawn by agitation with acidulated water, and were subsequently recovered from the mixed acid solutions, after addition of an excess of solution of soda, by shaking with chloroform and evaporating the chloroformic solution to dryness.

Experiment II.—Twenty-five c.c. of the tincture was boiled with a little slaked lime, the mixture filtered, and the precipitate washed with 2 fluid ounces of boiling methylated spirit, added gradually. The filtrate was then acidified with dilute sulphuric acid, and evaporated over a water-bath until the alcohol had been driven off. The liquid was then made alkaline, and the alkaloids removed by means of benzolated amylic alcohol. From the latter solution they were recovered by shaking with several small quantities of acidulated water, mixing the acid liquids, adding an excess of solution of soda, and taking out with chloroform.

Experiment III.—Twenty-five c.c. of the tincture was mixed with a little slaked lime, and the mixture evaporated to dryness over a water-bath. The dry extract was mixed with a little sand, and the mixture treated with successive portions of boiling chloroform till exhausted. The chloroformic solutions were mixed, and the alkaloids shaken out with acidulated water. From the latter solution the alkaloids were subsequently recovered by means of chloroform.

Experiment IV.—Ten c.c. of the tincture was diluted with 50 c.c. water, an excess of solution of soda added, and the liquid shaken up with four successive small quantities of chloroform. From the mixed chloroformic solutions the alkaloids were extracted by agitation with acidulated water. Finally the mixed acid alkaloidal solutions were made alkaline, and the alkaloids shaken out with chloroform.

The results were as follows:—

Experiment 1 .. 100-c.c. tincture = ·778 gramme total alkaloids.
„ 2 .. 100-c.c. „ = ·784 „ „ „
„ 3 .. 100-c.c. „ = ·872 „ „ „
„ 4 .. 100-c.c. „ = ·928 „ „ „

The alkaloidal residues presented the same appearance, and the results of these experiments pointed to process 4 as being the most suitable for the purpose.

In order to confirm the above results, another sample of tincture was taken, and estimated by this process. As a check upon the result, a second estimation was also made, the tincture being evaporated with water, the residual liquor acidified, the alkaloids precipitated as periodides, the latter decomposed by means of a 5-per-cent. solution of sulphurous acid, and the alkaloids recovered from the solution, to which an excess of solution of soda had been added, by means of chloroform.

The yield of alkaloids was as follows:—

By Process 4 .. 100-c.c. tincture = ·790 gramme alkaloids.
By precipitation.. 100-c.c. „ = ·780 „ „

The details of the process of estimation are as follows:—Ten c.c. of the tincture is introduced into a stoppered glass separator, and diluted with 50 c.c. water; a slight excess of solution of soda is then added, and the alkaloids removed by shaking—first with 10 c.c., and then with three successive 5 c.c., chloroform. The chloroformic solutions are drawn off in turn, mixed, and the alkaloids taken out by shaking with successive small quantities of acidulated water, until the latter ceases to give alkaloidal indications with Mayer's reagent. The acid solutions are mixed and made alkaline, and the liquid shaken—first with 10 c.c., and then with two successive 5 c c., of chloroform. The latter is drawn off into a tared platinum dish, and evaporated over a water-bath, and the residue in a water-oven at 100°, and weighed. The results of the estimation of the tinctures are given in Table I.

The percentage of extractive was ascertained by evaporating 10 c.c. of the tincture, drying the residue at 100°, weighing, and multiplying the result by 10.

A glance at the table of results will show that the most complete exhaustion of cinchona-bark is made by the employment of a 70 or 80-per-cent. menstruum. A study of the table also proves that alcohol is a better solvent of the active principles of cinchona than is generally supposed. The weakest series of tinctures in the table contain 63 per cent. of the alkaloids present in the drug operated upon; and in case of the specimen from which No. 8 series was prepared, and which contained 8 2 per cent. total alkaloids, no less than 91 per cent. was extracted.

TABLE I.

Showing Quantitative Results of Estimation of Tinctures of Cinchona.

No.	Amount of Alkaloid in Grammes from 100 c.c. Tincture.					Amount of Extractive in Grammes from 100 c.c. Tincture.				
	90-per-cent. Tincture	80-per-cent. Tincture	70-per-cent. Tincture	60-per-cent. Tincture	50-per-cent. Tincture	90-per-cent. Tincture	80-per-cent. Tincture	70-per-cent. Tincture	60-per-cent. Tincture	50-per-cent. Tincture
1	·80	·79	·88	·85	·78	6·96	6·96	8·04	8·06	7·60
2	·76	·84	·89	·85	·77	4·16	4·76	5·14	4·96	4·70
3	1·29	1·29	1·28	1·36	1·22	6·24	6·40	6·24	7·30	6·64
4	1·22	1·22	1·37	1·10	1·15	5·76	5·66	6·42	5·40	5·90
5	·80	·94	·83	·83	·74	5·20	5·82	5·98	5·56	5·18
6	1·10	1·15	1·16	1·09	1·01	5·72	5·96	6·20	6·10	5·94
7	·66	·79	·76	74	·61	4·56	5·70	5 30	5 62	5·00
8	1·27	1·50	1·50	1·48	1 26	6·96	7·62	7·90	7·68	7 46
9	·84	·93	·95	·84	·84	4·90	5·44	6·02	5 64	5·76
10	·97	1·00	·85	·77	·73	5·72	6·22	5·14	5 08	4·98
11	·73	·79	·82	·76	·74	4·86	5 26	5·58	5·00	4 64
12	·68	·76	·78	·69	·65	5·42	6·04	6·32	6 00	5·74
13	·76	89	·90	·82	·82	4 50	5·24	5·56	5 16	5·40
Average	·91	·99	1·00	·93	·87	5 46	5 89	6·14	5·96	5·76

With the subject of the standardisation of this tincture it is our intention to deal subsequently.

In order to test the comparative value of alternative processes for the preparation of this tincture, two samples of bark—one in No. 40 and the other in No. 60 powder—were taken, and a series of tinctures made from each, with a 70-per-cent. menstruum, by the processes outlined in previous papers, and which we have termed those of simple maceration, double maceration, macero-percolation, and continuous percolation.

These tinctures were estimated by the process previously employed, with the results indicated in Table II.

TABLE II.

Showing Results of Experiments on Process for Making Tincture.

	Percentage of Alkaloid				Percentage of Extractive			
	By Maceration	By Double Maceration	By B.P. Process	By Continuous Percolation	By Maceration	By Double Maceration	By B.P. Process	By Continuous Percolation
I.	·68	·65	·89	·97	4·10	4·60	5·06	5·34
II.	1·07	1·06	1·38	1·29	5·16	5·28	6·46	6·24

Those results sufficiently establish the superiority of the percolation processes, and seem further to prove that the process of macero-percolation and that of continuous percolation are about equally well-adapted for the preparation of this tincture.

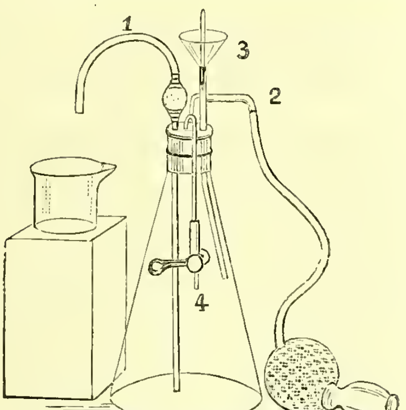
Mr. GROVES said he hoped the paper would lead in the next edition of the Pharmacopœia to there being several strengths of alcohol corresponding to the qualities of drugs under treatment. He had found, for instance, that tincture of cascarilla made with proof spirit was certainly nothing like so good as tincture made with slightly stronger spirit. He thought the tendency of these researches by Messrs. Farr and Wright would be to lead probably to an extension of that plan of adapting the drug to the menstruum best suited for it. It was a valuable piece of work.

Mr. **Bird** then read the following note, and demonstrated to the gratification of the meeting the use of

A Filter for "Mayer" Estimations.

By F. C. J. Bird.

This was a description of the apparatus which we sketch here. We have a conical flask fitted with a rubber cork, through which passes tube 1, shaped as shown, the bulb being filled with asbestos; 2 is the bellows of a spray-producer, and is connected with a tube which passes into the air-space of the flask. In 3 we have a funnel closed with a stopper, the limb of the funnel being bent to an angle and bent diagonally as shown. The fourth tube (4) is closed with a burette-clip.



In working, the "Mayer's" solution is run in through the funnel into the alkaloidal solution until precipitation apparently ceases; then some of the mixture is squeezed out with the bellows through tube 1, thus enabling the operator to judge, by testing the clear liquid driven into the beaker, whether the end point has been reached or not.

The **President** said the apparatus was a very clever one for filtration, and he complimented Mr. Bird very highly upon it.

Estimation of Phenol.

The Conference had now to deal with a paper entitled "The Action of Iodine on Phenol in Alkaline Solution, under various conditions, with special reference to the Estimation of Phenol Volumetrically by this method," and when the author, Mr. Thomas Carswell, appeared with a bulky manuscript something like horror crept over the audience. Mr. Carswell was implored to give a short abstract of it, and he said he would, but straightway proceeded to fill up the time from 3.15 to 3.40. The pity of it was, too, that the paper seemed to be a good one, representing much work and a lively acquaintance with the subject. But it is impossible to report, from the statement made by the author, anything like a sequential description of his work. He sketched upon the blackboard graphic formulæ which were not seen; he formulated laws and propositions which the absence of data placed in the realms of the unknown, and had a fine stroke of revenge for his doubtful welcome by thoroughly befogging the audience, and keeping the floor for twenty-five minutes, in spite of the prayers of the chair, and the interruptions from the benches.

When Mr. Carswell resumed his seat the rest of the papers were taken as read. They were the following:—

Concentrated Oil of Lemon.

By Arthur A. Barrett, Pharmaceutical Chemist, Messina.

The author showed a sample of this oil at an evening meeting of the Pharmaceutical Society, and he now referred to Tilden and Wallach's researches, stating that essence of lemon owes its value to the presence of a body which, in the absence of exact knowledge, he calls "concentrated essence of lemon." This body is said to have been isolated so far back as the year of the Philadelphia Exhibition in 1876, but little was heard of it until about three years ago, since which time its use for special purposes has considerably increased, displacing the ordinary essence. As to what the constitution of the concentrated oil is he was unable to say, and he does not think that concentrated oil of lemon has been used for pharmaceutical purposes so far. He thinks, however, that it would be advantageously used in making concentrated infusion of gentian.

A great deal of mistrust in concentrated oil arises through its great concentration. As to the exact relative strength, no two opinions are exactly alike, and the article should be allowed to stand on its merits. In England the largest proportion of concentrated oil which he ever obtained was 5 per cent., and the average, using the best quality oil obtainable, was a little over 4. The strength may, therefore, be considered as twenty-four times, and if comparison is made with ordinary commercial qualities, the strength is thirty times.

Essence of Lemon.

By Arthur A. Barrett, Messina.

In this paper it was stated that in making oil of lemon, one man takes a lemon in his hand, and with three rapid strokes with a large knife cuts off nearly all the peel in three slices. The central portion which is left consists of most of the pulp with a little of the peel—top and bottom. This is simply pressed for making lemon-juice. The slices pass to a second workman, who sits on a low chair with an ordinary common quality bath-sponge, worth about 6*d.*, in one hand. With the other he presses the slice of peel against the sponge, pressing the edges of the peel only with his fingers, the object being to press the convex piece of lemon-peel as nearly flat as possible. One man can extract about 1½ lb. essence of lemon per day. To ensure the cells being fully charged with moisture, it is usual to allow the lemons to stand in water for a short time. After referring to the preparation of lemon-peel for candying, the author said that the peel is sometimes deprived of its oil without rupturing the oil-vessels, and the quantity of essence obtained in this way is considerable. It is generally assumed in England that all pure essence of lemon is good. This is far from being the case. He had seen essence of lemon containing 15 per cent. of turpentine, which was really superior to essence of lemon made the same day in my presence, and absolutely pure. This results from the extraordinary variation in the quality of the essence made in the various months. This difference is not noticed much in England, even the best exporters having to make an average sample, which they can supply all the year round. Turpentine is in large use, and is purified in a peculiar way. One exporter is said to use 10 tons per annum. Strange to say, the worst qualities of essence all go to London, Manchester, and Glasgow. In particular English wholesale druggists have an unenviable reputation for buying low qualities. Experienced buyers claim to be able to distinguish the district and village in which an essence had been made simply by smell and inspection. Testing is carried out as follows:—A sample is poured out into a tumbler and shaken up after placing the hand on top. Great attention is then paid to the duration and size of the bubbles and froth, the colour is noted, and one smell is taken with the glass full and another after emptying it. Turpentine will certainly be detected in this way if over 5 per cent is present.

Preliminary Proximate Analysis of a Sample of Commercial Myrabalans.

By A. Campbell Stark.

The myrabalans of commerce consist of a mixture of the fruits of several species of *Terminalia*, the principal being

T. Chebula, *T. bellerica*, and *T. citrina*. The fruits on which the following analysis was performed were kindly examined for me by Mr. E. M. Holmes, who thinks they were derived from *Terminalia Chebula* and *citrina*. Myrabalans have for a long time been used in this country as a tanning material, and several species, particularly *T. bellerica* and *Chebula*, are used as medicines in the East. Full descriptions of the uses of the fruits have been given by Hooper, Dymock, and others, and an analysis of the fruits of *T. bellerica* has lately been published. ("Pharmacopœia Indica," No. 3, 1890.)

It has been suggested that commercial myrabalans would form a useful addition to our list of astringent drugs, and it is with a view of ascertaining what bodies, besides tannins, are present, and what advantages this drug possesses, if any, over other astringent substances, that I have attempted this analysis.

Dr. Apery (of Constantinople) has very strongly recommended the use of myrabalans in the treatment of dysentery and diarrhœa, and also considers the drug to be cholagogue. He describes its effects in the treatment of dysentery as very remarkable. (*L'Union Pharmaceutique*, 1887.)

The same author also gives some details of analysis (*Journal de Pharmacie et Chimie*, 1888, p. 140), and states that the different varieties of fruits are all derived from the same plant, but at different stages of maturity.

I have not been able to find an account of a full analysis of a sample of commercial myrabalans, although much work has been done upon the tannins present.

Analysis.

Estimation of Moisture.—5·032 grammes of the finely-powdered and well-mixed drug, dried on a water-bath, lost ·355 gramme = 7·05 per cent. moisture.

Estimation of Ash.—2·517 grammes of powder yielded ·058 gramme = 2·30 per cent. ash.

The ash was exhausted with water and hydrochloric acid successively, with the following result:—

	Per cent.
Soluble in water	1·202
„ in HCl	·872
Insoluble residue	·230
	2·304

The portion soluble in water (the solution was strongly alkaline) contained carbonate of potassium and chloride of sodium. That soluble in hydrochloric acid contained oxide of iron and phosphates of calcium and magnesium. The insoluble portion was not further examined; it was probably silica. The ash had a slightly green appearance, but I was unable to confirm the presence of manganese.

The amount of ash is unusual, since Allen ("Commercial Organic Analysis," vol. iii., part I., p. 106) gives the proportion of ash usually yielded by commercial myrabalans as about 10 per cent. After four estimations, however, I am satisfied that the figures I have given are correct for the sample under consideration.

One hundred grammes of the drug, reduced to very fine powder, were packed in a percolator, and extracted successively with petroleum ether, ethylic ether, alcohol (s.g. ·810), and distilled water, the powder being dried in the air between each extraction. Four extracts were thus obtained, which were examined as follows:—

Petroleum-ether Extract.—Colour, light yellow; a drop evaporated on a piece of blue paper left a slight oily stain. A few c.c. evaporated in a watch-glass in the air left no smell. I did not further examine this extract for volatile oil.

Half the total extract, evaporated on a water-bath until the weight was constant, yielded ·255 gramme = ·510 per cent. of a yellow semi-solid residue, having, when warm, a strong fatty smell. This was treated with cold absolute alcohol, when ·241 gramme dissolved.

The alcoholic solution was distinctly acid to litmus, and phenol-phthalein. An attempt was made to titrate it with $\frac{N}{20}$ alcoholic soda, but owing to an unlucky accident, which occasioned some loss, the estimation was not complete. The quantity required would not have been less than 20 c.c.

The residue was soluble in chloroform and appeared to me to be wax.

Petroleum-ether extract contained:—

	Per cent.
Soluble in cold alcohol (partly free fatty acid) ..	·482
Soluble in chloroform (wax)	·028
	·510

Etherial Extract (1,300 c.c.)—Colour light yellow. Some of the ether used, which I believed to be absolute, I subsequently found to contain a little alcohol and water. The ether was therefore distilled off, the residual extract dried under sulphuric acid and treated with ether (of s.g. ·719), the portion insoluble in ether being dissolved in alcohol and added to the alcoholic extract. This etherial extract still contained tannin, and I found by direct experiment that the tannin present in the drug is slightly soluble in ether of s.g. ·719. Half this etherial extract was distilled, and the residue which had the peculiar smell of powdered myrabalans, dried until the weight was constant. It weighed 3·165 = 6·33 per cent. It was treated successively with distilled water and alcohol.

	Per cent.
A. Soluble in water	4·04
B. Soluble in alcohol	1·32
C. Insoluble in alcohol and water, soluble in ether ..	·97

The Aqueous Solution, A (200 c.c.) was of a light-brown colour, and evidently contained tannin. On standing a few hours a white deposit fell; this was filtered off from a portion of the liquid and examined: it appeared to me to be gallic acid.

Ten c.c. of the solution, after redissolving the deposit by heat, were taken, and the tannin precipitated by solution of gelatine, avoiding excess; the mixture was filtered, and the filtrate well washed with acetic ether. The etherial solution separated, evaporated, and the residue dried, weighed ·056 gramme = 2·24 per cent. gallic acid.

The aqueous solution from this operation was examined, but I could not find anything present except a little tannin. A portion of the solution was treated with lead acetate, filtered, excess of lead removed with sulphuretted hydrogen, and the acetic acid got rid of by evaporation. Nothing but a little tannin appeared to be present in the solution.

Alcoholic Solution, B (100 c.c.).—This was of a greenish colour, and gave evidence of containing gallic acid.

Twenty c.c. were evaporated, and the residue exhausted with boiling water which dissolved ·078 gramme = ·78 per cent. soluble in hot water. This appeared to me to consist entirely of gallic acid.

The residue, ·54 per cent., consisted of a soft green resin. This substance is, presumably, the "myrabalamine" of Dr. Apery.

The residue C, insoluble in alcohol and water = ·97 per cent. (by difference), was redissolved in ether, and the solution again evaporated. It was of a brown colour, and had the character of an indifferent resin. All the solutions mentioned above were examined for alkaloids, bitter principle, glucoside, or sugar, without result. The etherial extract contained:—

	Per cent.
Gallic acid	3·02
Tannins	1·80
Green resin, soluble in alcohol	·54
Brown resin, soluble in ether	·97
	6·33

Alcoholic Extract (1,500 c.c.)—This was of a dark-brown colour, and deposited slightly on standing.

Fifteen c.c. evaporated, and the residue dried until the weight was constant, weighed ·251 gramme = 25·1 per cent. matter soluble in alcohol.

One hundred and fifty c.c. of the alcoholic extract were taken and evaporated at a low temperature (below 80° C.) until all the alcohol was driven off, the residue filtered, and the filtrate made up with washings to 150 c.c.

Fifteen c.c. of this solution evaporated, and the residue dried, weighed ·231 gramme = 23·1 per cent. soluble in water.

Examination for Tannin.—Fifteen c.c. of the aqueous solution were precipitated with acetate of lead; the precipitate, rapidly washed and dried, weighed ·336 gramme. The precipitate, incinerated and heated in the blowpipe-flame until the weight was constant, weighed ·119 gramme = 20·7 per cent. matter precipitated by acetate of lead.

Fifteen c.c. of the aqueous solution, precipitated in the same manner with acetate of copper, gave a precipitate weighing ·249 gramme, and a residue, after heating, of ·061 gramme = 18·8 per cent. tannin, &c., precipitated by acetate of copper.

The matter (1·9 per cent.) precipitated by lead acetate, but not by copper acetate, I believe to contain a bitter principle. Its examination is reserved for the sequel to this paper.

Myrabalans, as is well known, contain both ellagic and gallo-tannic acids. Much work has been done on the former by Loewe and others.

The percentage of tannins found in the sample of myrabalans under consideration (20·6 per cent.) is low, since Allen and others give the average proportion of tannin in myrabalans as from 20 to 40 per cent. My figures represent the mean of four estimations.

Estimation of Glucose.—The filtrate left from the precipitation by lead reduced Fehling's solution (after removal of the excess of lead acetate from the solution). On estimation, 1 c.c. of Fehling's solution was decomposed by 6·6 c.c. of the filtrate = **1·13** per cent. glucose.

Estimation of Saccharose.—A portion of the filtrate was boiled with 2 per cent. of hydrochloric acid for half an hour, and the solution, estimated by Fehling's reagent, = 1·25 saccharose and other carbohydrates.

The residue, insoluble in water, from the alcoholic extract was treated with dilute ammonia (1 in 50) as long as anything was removed; the filtrate rendered slightly acid with acetic acid, evaporated, washed, and dried, weighed ·086 gramme = ·86 per cent. phlobaphene.

The washings from this operation, evaporated, left a dark-brown residue, weighing ·035 gramme. It was freely soluble in water, gave no precipitate with gelatine, had no taste, and seemed to me to be a colouring-matter.

The residue from the treatment with ammonia was of a pale-green colour; it weighed ·071 = ·71 per cent. It was insoluble in ether, alcohol, or chloroform, freely soluble in dilute caustic soda, the solution being a dark greenish-brown colour.

Aqueous Extract (1,500 c.c.)—This was of a very dark-brown colour. Fifteen c.c., evaporated and dried, weighed ·051 gramme = 5·1 per cent. of matter soluble in water.

I regret that great pressure of business compels me to defer the examination of this solution until later on.

It will be understood that the foregoing details merely represent a preliminary examination of the chief constituents of commercial myrabalans. I trust to be able to publish further details shortly.

NOTE ON THE EXAMINATION OF SPURIOUS IPECACUANHA.

By THEO. H. WARDLEWORTH.

The high prices for ipecacuanha which have ruled for some time past have produced the usual flood of consignments of so-called ipecacuanha. Some have been so palpably spurious that they have scarcely called for notice, while others have been better calculated to deceive.

A recent arrival in this country which was described as ipecacuanha was so large, and its virtues were so loudly sung by the shippers, that it called for more than passing notice. At first sight the light-coloured straight roots seemed to indicate that the parcel deserved slight attention. On careful examination, however, the samples were found to contain roots here and there which possessed that annulation which is so strongly characteristic of the *Cephaëlis Ipecacuanha*. As the shipper claimed that the drug was largely used as ipecacuanha in Parnahiba and district, and as the quantity was so large, the writer decided to make, as far as possible, an exhaustive examination of the root. Close scrutiny proved it to be the *Ionidium Ipecacuanha*. Mr. Wardleworth gave particulars of the structural and other differences between the true and the spurious ipecacuanha.

LYCOPERSICON ESCULENTUM.

By FREDK. DAVIS.

The author has found in the tomato, in addition to malic acid, the presence of which has already been recorded, a volatile oil resembling oil of garlic, but this does not appear to be present in the uncooked fruit. This oil on examination will be found to consist of oxide and sulphide of allyl say $(C_3H_5)_2S$.

PRESENTATION FROM BELL AND HILL'S FUND.

The PRESIDENT said he had now a very pleasing duty to perform, namely, the presentation of books from the Bell and Hill's fund. Though both these gentlemen had now passed away, their names would be perpetuated by the presentations made from this fund. He might remind them that since the death of Jacob Bell they had now for the first time a retail chemist in the House of Commons, namely, Mr. Townsend, of Bristol, and if they had any grievance he should advise them to write to Mr. Townsend claiming him as their member. He had pleasure in handing over to Mr. Ewing, the esteemed chairman of the North British Branch of the Pharmaceutical Society, the books presented, the titles of which were as follows:—Hooker's "Genera Plantarum," by Bentham, three volumes; Peddie's "Manual of Physics"; Schmiedeberg's "Elements of Pharmacology"; Mendeléeff's "Principles of Chemistry." They had also two splendid books presented by Mr. Thomas Hanbury, in memory of his brother, namely, "Science Papers" and "Pharmacographia."

Mr. EWING expressed his pleasure in accepting the books, which, he said, would form a valuable addition to their library—a library very largely consulted for purposes of reference, not only by chemists in Edinburgh but throughout Scotland, and also by members of the medical profession. He wished, in one word, to say regarding Mr. Hills, who had died during the past year, that there was no pharmacist who came north of the Tweed so singularly beloved as he had been.

ELECTION OF FORMULARY COMMITTEE.

Mr. BRANSON, of Leeds, moved the re-election of the Formulary Committee.

Mr. MASON seconded the motion, which was unanimously agreed to.

BRITISH ASSOCIATION AND THE CONFERENCE.

Mr. J. C. C. PAYNE (Belfast) said that he was a representative from a country which was supposed to be always giving trouble. ("Hear, hear," and laughter.) In this case, however, he thought it was the Conference that had a grievance. There appeared to be an unwritten law that the Conference must be held in the same town and at the same time as the British Association. This rule was attended with considerable inconvenience, as they were crowded out of hotels as well as out of the daily press. If the meetings were held at different times or in different places, some of their members who were also members of the British Association might find it difficult to attend both meetings. But it was quite obvious, from the success of the present Conference, that it was not disadvantageous to have the meetings at a different time, for with the exception of the Conference at Manchester in 1887, when 228 were registered as being present, this had been the most largely attended during the last ten years, as there were over 200 members attending it. In submitting his resolution he did not wish to show any disrespect to Nottingham, where the British Association was to meet next year. He concluded by moving—

> That in future the Conference do not meet in the same town or at the same time as the British Association.

Mr. HODGKIN expressed his willingness to second the motion if Mr. Payne would modify it by adding after the words "do not" the words "of necessity."

Mr. PAYNE agreed to the modification suggested.

Mr. BUTLER, in supporting the resolution, said he did not see why the Pharmaceutical Conference should allow itself to be dragged at the tail of the British Association; a remark which led

The PRESIDENT to say that the Pharmaceutical Conference had undoubtedly originated from the British Association, and had been attached to it for many years as regarded the holding of their meetings. He had always thought that the Conference had suffered a good deal in consequence, as the two meetings clashed.

Mr. JAMES MACKENZIE (Edinburgh), asked if there was any resolution standing in the rules at present as to the holding of the Conference, and, having been answered in the negative, he contended that Mr. Payne's resolution was unnecessary.

After further discussion, in the course of which it was pointed out that the practice of holding the Conference at the same time and place had been thrice broken through,

Mr. REYNOLDS moved the previous question.

Mr. MACKENZIE seconded.

A vote was then taken, with the result that Mr. Payne's resolution was declared to be carried.

PLACE OF MEETING FOR 1893.

Mr. BOLTON (Nottingham) said that he had listened to the discussion that just closed with some degree of interest, because he had been deputed by the Nottingham and Notts Chemists' Association, and the trade in general at Nottingham, to invite the Conference to hold its meetings next year in that town. He hoped that, should the Conference accept the invitation, they would be able in Nottingham to put them not at the tail of the British Association, but at the head of it. He was sorry that Mr. FitzHugh, the Mayor of Nottingham, and the President of their Association had been unable, because of his important duties as chief citizen of Nottingham, to be present at that Conference and give the invitation. He (Mr. Bolton) had been asked by Mr. FitzHugh to say that it was his earnest hope that they would visit Nottingham. It was now twenty-seven years since the Conference had been there, and if they agreed to come next year they would find that many changes had taken place. Then the population was 80,000, now it was between 230,000 and 240,000. They had many places of interest to visitors. There was the Nottingham Castle and Art Museum; and they had what they were very proud of—namely, a University College, the only one in the kingdom which had been founded by the people, managed by their representatives, and carried on under the direction of the corporation. (Applause.)

Mr. GILL, the secretary of the Nottingham Chemists' Association, in supporting the invitation, said that Mr. Bolton had omitted to mention one attraction in Nottingham —a great one for ladies—namely, the manufacture of lace. (Applause and laughter.)

Mr. DAVIES moved that the invitation be accepted and the 1893 meeting be held at Nottingham.

Mr. ABRAHAM seconded.

The PRESIDENT said that he remembered with feelings of pleasure their last visit to Nottingham, and he should be happy if it were decided to go there again. He was not quite sure, however, that the attraction which Mr. Gill had spoken of—namely, the manufacture of lace—was a desirable one, because it was one that might prove most expensive if their lady friends had it brought under their notice. (Laughter.)

The motion was then put to the meeting and unanimously agreed to.

Mr. MACKENZIE asked when the meeting would be held?

The PRESIDENT said that would have to be decided by the local committee of the Executive.

ELECTION OF OFFICERS FOR 1893.

Mr. REYNOLDS moved the election of the following gentlemen:—

President.

Octavius Corder, Norwich.

Vice-Presidents.

M. Carteighe, F.I.C., F.C.S., London.
J. L. Ewing, Edinburgh.
W. Hayes, Dublin.
R. Fitz-Hugh, Nottingham.

Treasurer.

R. H. Davies, F.I.C., F.C.S., London.

Honorary General Secretaries.

W. A. H. Naylor, F.I.C., F.C.S., London.
F. Ransom, F.C.S., Hitchin.

Honorary Local Secretary.

C. A. Bolton, Nottingham.

Other Members of the Executive Committee.

Peter Boa, Edinburgh.
D. B. Dott, F.R.S.E., Edinburgh.
A. W. Gerrard, F.C.S., London.
W. Gill, Nottingham.
J. Hodgkin, F.I.C., F.C.S., London.
E. M. Holmes, F.L.S., London.
A. H. Mason, F.C.S., F.R.M.S., London.
R. Wright, Buxton.
J. C. C. Payne, Belfast.

Auditors.

Thomas Thompson, Edinburgh.
John Wilford, Nottingham.

The motion was agreed to unanimously.

VOTES OF THANKS.

Mr. ATKINS said that he had a most important resolution to propose—namely, that a cordial vote of thanks should be awarded to the local committee, especially to Mr. Boa, Mr. Young, and Mr. Ewing, for the very successful manner in which the arrangements connected with the Edinburgh visit had been carried out. Everything had been a great success —the lunches had been excellent, the drives had been charming, and the hotel accommodation, he believed, had been very good. He wished to recognise particularly the hospitality accorded to the ladies (hear, hear, and applause), and he felt that he was only expressing the feelings and sentiments of the meeting when he added that to the ladies of Edinburgh who had so kindly ministered to the requirements of the ladies who had come as visitors in connection with the Conference their very best thanks were due. (Applause.) Two things were required in connection with all the arrangements that had been made—first prevision, to think out and forecast what would be needed, and then provision for what prevision indicated. The arrangements had been excellent, and they had been exceptionally well carried out. (Applause.) He had been present at twenty-one of the twenty-nine meetings of the Conference, and the arrangements for their enjoyment in Edinburgh had surpassed any of them. Edinburgh had a reputation for hospitality to sustain (which was sometimes a dangerous reputation), and it had sustained it worthily on this occasion. (Applause.) To Mr. Boa, for the patient attention he had bestowed, to their dear friend Mr. Young, who regretted, as they all did, his inability to be present with them, and to Mr. Ewing, with his kind and genial presence and his unstinted hospitality, they were all greatly indebted. (Applause.)

Mr. CONROY, in seconding the resolution, said that he could heartily endorse every word that had been said by Mr. Atkins. He had never attended any Conference meetings where all the arrangements had been carried out so successfully. (Applause.)

The PRESIDENT, before putting the resolution to the meeting, said he was very sorry their dear friend Mr. Young was not present, but he had excellent substitutes in Mr. Boa and Mr. Ewing.

The resolution was then put to the meeting, and carried with great applause.

Mr. EWING, in acknowledging the vote of thanks, said that it had been a great pleasure to him to assist in making their visit a pleasant one.

Mr. BOA also replied. He said that, although he had been supposed to have done a great deal of work in connection with the arrangements, he had really not done so much as might have been expected, because he had had a great deal of assistance. There was a large and enthusiastic working committee. The conveners of the committees, Mr. McLaren, Mr. Thomson, and Mr. Aitken (whose names he mentioned that they might share in the appreciation which had been shown) had done almost as much as himself.

Mr. MARTINDALE moved, and Mr. CROSS seconded, that a vote of thanks be given to the Edinburgh University authorities for permission to inspect the Medical School. This was agreed to.

Mr. GROVES moved a vote of thanks to the President, and, amidst loud acclamation, he said that he had never sat under an abler chairman than Mr. Stanford, who had shown so intimate an acquaintance with pharmaceutical matters, and had conducted the proceedings with so much skill. This vote was seconded by Dr. INGLIS CLARK, and, with loud bravoes, was put to the meeting by Mr. Groves, and unanimously passed.

The PRESIDENT, in reply, said that he could not forget the kindness of the members of the Conference, nor could he forget the fact that it was owing to the admirable services of the honorary secretaries that much of the success of the meeting was due. If there were no President, he could guarantee that the secretaries could go out into the streets and bring in any man from there, and in the matter of ten minutes would have coached him sufficiently to conduct the business in a proper manner. (Applause.)

Mr. MARTINDALE then moved that the thanks of the meeting be given to Mr. Naylor and Mr. Ransom for their services.

Mr. ATKINS seconded this, and it was passed with applause.

This concluded the proceedings.

CONFERENCE EXTRAS.

The arrangements made by the local committee for the entertainment of the visitors were of the most ample description. First may be mentioned what was done for the ladies. Mrs. James Buchanan was the convener of the committee in charge of this matter, and they had the drawing-room in the Waterloo Rooms available for the use of visitors during the Conference. Immediately after the President's address on Tuesday, a party of about forty had a drive through the city, with Mrs. Inglis Clark and Miss Dott as guides, returning to luncheon at the Waterloo Hotel. On Wednesday a party of thirty-six were conveyed in carriages to the Botanical Gardens by Mr. Rutherford Hill, and at the conclusion of the visit one-half of the party were invited by Mrs. Buchanan and one-half by Mrs. Brown to luncheon at the respective houses of those ladies. The weather was fine, and the visit proved a great success. On Wednesday evening, at the time the gentlemen of the Conference were attending the smoking concert, the ladies were invited to meet for a musical evening at the Waterloo Hotel, where arrangements had been made under Mrs. Buchanan's direction.

On Tuesday, at 4 o'clock, over 200 members and lady friends embarked on coaches for an excursion to Rosslyn Castle and Chapel. The party was favoured with good weather, and the drive to Rosslyn was much enjoyed, English visitors especially being charmed with the architectural beauty of the ancient chapel. An excellent tea was served in the Royal Hotel, and the party returned to Edinburgh shortly after 8 o'clock.

On Tuesday evening Mr. J. L. Ewing, Chairman of the North British Branch, entertained the officials of the Pharmaceutical Society, and Mr. J. R. Young the officials of the Conference, to dinner at the Central Hotel. The dinner was private, but we are allowed to say that Mr. Ewing presided, and in the absence of his brother host through illness, Mr. J. R. Young, junior, acted as croupier. About forty gentlemen were present, and they were very much struck with the special richness of the floral decorations. The following are the toasts which were given:—

"The Pharmaceutical Society of Great Britain," by Mr. D. Brown. Response by Mr. Cross and Mr. Bremridge.

"Past Presidents of the Pharmaceutical Conference," by Mr. Noble. Response by Mr. Martindale and Mr. Stephenson.

"The North British Branch," by Mr. Atkins. Response by Mr. Maben.

"Distinguished Visitors," by Mr. Johnston. Response by Mr. Groves and Mr. Wells.

"Mr. J. R. Young, senior," by Mr. Reynolds. Response by Mr. Young, junior.

"The Press," by Dr. Inglis Clark. Response by Dr. Paul and Mr. MacEwan.

The Chairman and the Croupier were also toasted.

MEMBERS PRESENT.

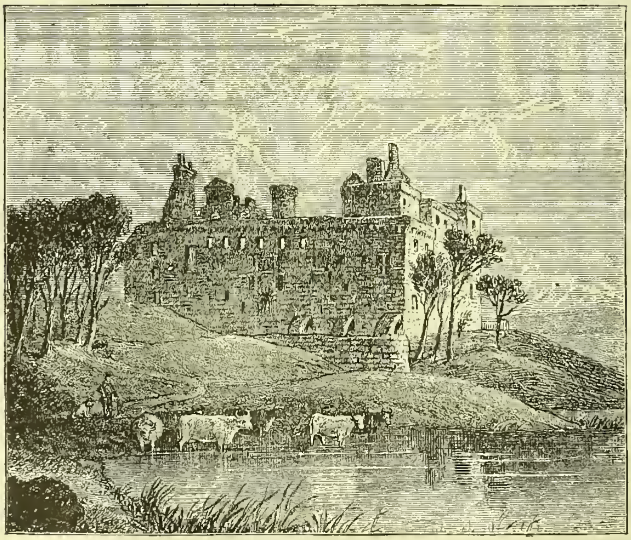
Abraham, T. F., Liverpool
Aitken, R., Edinburgh
Alexander, J., Liverpool
Allan, W., Dumfries
Allen, A. H., Sheffield
Anderson, A. B., Dundee
Anderson, J., Edinburgh
Archer, C , Edinburgh
Arkinstall, W., London
Atkins, S. R., Salisbury
Bain, J., Liverpool
Baptie, J., Dumbarton
Bascombe, F., London
Baxter, W., Edinburgh
Bayley, Mr. and Mrs. G. H , Saltaire
Beggs, Mr. and Mrs. G. D., Balkey
Berry, W., Clifton
Bird, F. C. J., London
Boa, Peter, Edinburgh
Bolton, Mr. and Mrs. C. A., Nottingham
Borthwick, A. J., Selkirk
Bowen, J. W., London
Bowman, J., Leith
Bowman, Mrs., Leith
Branson, F. W., Leeds
Bremridge, R., London
Broadbent, H., Leeds
Broomhead, G. E., Aberdeen
Brown, A., Edinburgh
Brown, D. R., Edinburgh
Brown, J., Edinburgh
Brown, Miss, Dublin
Bruce, A. G., Edinburgh
Buck, A. S., Liverpool
Burford, S. F., Leicester
Butler, E. H., Leicester
Christie, R. A., Edinburgh
Clague, T. M., Newcastle-on-Tyne
Clark, A., Edinburgh
Clark, J , Aberdeen
Clark, J., York
Clark, W. Inglis, Edinburgh
Coats, J. T., Leith
Coleman, A., Cardiff
Collier, H., London
Conroy, J. T., Liverpool
Conroy, Mr. and Mrs. M., Liverpool
Cooper, F. A., Manchester
Coull, G., Edinburgh
Cross, W. G., Shrewsbury
Crowden, S. G., Edinburgh
Cruickshank, J., Aberdeen
Davies, R. H., London
Davies, W. A., Edinburgh
Dewar, F. L., Edinburgh
Dott, D. B., Ediuburgh
Duff, W., Edinburgh
Duncan, W., Edinburgh
Durley, W., Edinburgh
Ewmbank, J., Bedale
Fairburn, H., Northallerton
Fairley, T., Leeds
Farnworth, W., Blackburn
Fisher, J. H., Dunfermline
Forbes, M., Bolton
Forret, J. S., Edinburgh
Fowler, G. R., Forfar
Fraser, A., Forres
Fraser, J. J., Edinburgh
Fryer, C. A., London
Furness, J. M., Sheffield
Garth, E J., London
Garvie, A., Leith
Gerrard, A. W., London
Gibson, A., Edinburgh
Gill, Mr. and Mrs. W., Nottingham
Grierson, G. A., York
Grose, N. M., Swansea
Groves, T. B., Weymouth
Hall, H. E., London
Harvey, R. K., London
Harvie, G., Helensburgh
Heudry, R. L., Edinburgh
Henry, C. F., Edinburgh
Hill, J. R., Edinburgh
Hills, W., London
Hoare, W. R., London
Hodgkin, J., London
Hoseason, J. H., Manchester
Howie, W. L., Eccles
Hughes, J., Swansea
Humphrey, J., London
Hutton, H., Leamington
Hyne, H., London
Jack, J., Arbroath
Jaques, L. V., Mauritius
Johnson, M. K., London
Johnston, J., Aberdeen
Jones, W., Birmingham
Keith, S., Edinburgh
Kemp, H , Manchester
Kemp, Mrs., Manchester
Kinninmont, A., Glasgow
Komplé, F. R., Mauritius
Laird, W. H., Edinburgh
Lambert, R. M., London
Layman, C. N., London
Layman, F. A., London
Leath, A., Dunfermline
Lunan, G., Edinburgh
Maben, T , Hawick
Macadam, I., Edinburgh
Macadam N., Edinburgh
Macdonald, D. F., Edinburgh
Mackay, G. B. D., Edinburgh
Mackay, G. D., Edinburgh
Mackenzie, J., Edinburgh
Mair, W., Dundee
Marie, L. R., Mauritius
Martin, N. H., Newcastle-on-Tyne
Martindale, W., London
Martindale, Mrs., London
Mason, A. H., London
McEwan, Mr. and Mrs. London
McGibbon, G. L , Edinburgh
McGregor, D., Calcutta
McKay, J., Aberdeen
McLaren, D , Edinburgh
McMurray, J , Helensburgh
Milne, A., Edinburgh
Moss, J., London
Naylor, W. A. H., London
Naysmith, A., Arbroath
Nesbit, J., Portobello
Park, W., Broughty Ferry
Parry, E. J., London
Paterson, J., Aberdeen
Payne, Mr. and Mrs. J. C. C., Belfas
Pettinger, Mr. and Mrs., Hampstead
Puckey, W., London
Purves, S , Edinburgh
Rait, R. C., Partick
Ransom, F. Hitchin
Reynolds, R., Leeds
Richardson, W., Edinburgh
Riddle, T. E , Hexham
Robertson, J. M., Arbroath
Robertson, W. P., Clapham
Russell, J., Dundee
Russell, J. A., Lord Provost, Edinburgh
Sangster, A., London
Sharp, W., Newcastle-on-Tyne
Shepherd, J. W., Settle
Shepherd, T., Chester
Siebold, L., Manchester
Simpson, A. H., Forfar
Simpson, H. D., Louth
Smith, J., Liverpool
Smith, J. T., Radcliffe
Smith, W., Edinburgh
Squire, F. R., San Remo
Stanford, E. C. C., Dalmuir
Stephenson, J. B., Edinburgh
Stephenson, S., Liverpool
Stockman, R., Edinburgh
Storrar, D., Kirkcaldy
Strachan, A., Aberdeen
Strachan, A. L., Aberdeen
Strother, C. J., London
Sutherland, J. W., Dumfries
Swan, W., Ediubnrgh
Tanner, A. E., London
Taylor, G. S., London
Thompson, J. A., Lochie
Thompson, T., Edinburgh
Thomson, J. W., Edinburgh
Thomson, Mr. and Mrs. J. H., Lochie
Tocher, J., Dunfermline
Tyrer, T., London
Walker, J. H., Norwich
Want, W. P., London
Ward, J. S., Liverpool
Ward, W., Sheffield
Weld, C. C., London
Wellings, W., Liverpool
Wells, Mr. and Mrs. W. F., Dublin
White, E., Putney
Williams, W. G., Conway
Williams, W. Lloyd, Dartford
Wright, T. R., London
Young, J. R., jun., Edinburgh
Young, R. F , New Barnet

THE EXCURSION.

THE excursion was by no means the least successful feature of this very successful Conference. The sun shone brightly early in the morning, and throughout the day the party—numbering 260 all told—enjoyed magnificent weather. A pleasant surprise was prepared in advance of the excursionists by the distribution among them of an elegant booklet containing a full description, written by Miss Dott, of the places of interest to be visited, and prettily illustrated.

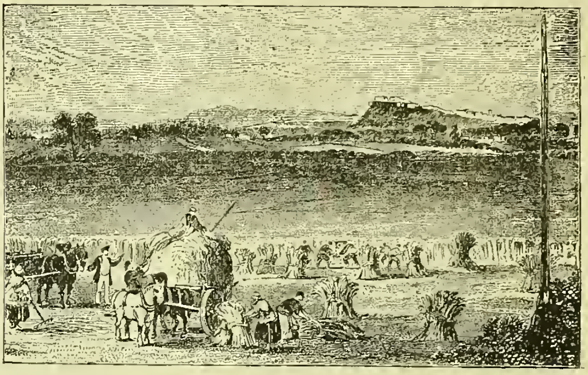
No untoward incident marred the pleasure of the glorious day. At Finlarig three pipers marched ahead of the column of now perfectly enthusiastic excursionists to Finlarig Castle, where, on a field surrounded by pretty greenery, the party were photographed. . . But we are anticipating, and therefore hasten to retrace our steps, and commence our account of the day's doings in orderly sequence.

Shortly before 9 o'clock, wires our correspondent, the members and their lady friends assembled on the platform of the Princes Street Station of the Caledonian Railway, where they embarked upon a well-appointed train of first-class carriages which was to take them through some of the wildest and most romantic scenery of Scotland. The sight-seeing commenced at once, for, on getting clear of the railway-works, a fine view was obtained of the extreme West-end of Edinburgh. On the right was Donaldson's Hospital, a scholastic edifice, once envied by the Queen, who thought of making it a second Holyrood; on the left, Craiglockhart Hill, the seat of a hydropathic establishment; and in the distance the bold outline of the Pentlands. In turn, Corstorphine and the Convalescent House there; Ratho, where a huge stone viaduct carries the line across some fields and the river Almond, were passed. A magnificent bird's-eye view was obtained of the Forth Bridge—that modern world's wonder which unites the kingdom of Scotland with the kingdom of Fife. Emerging from Winchburgh Tunnel, on the right a glimpse was obtained of Niddrie Castle, an old baronial tower where, after her escape from Loch Leven Castle, Queen Mary Stuart rested and sent messengers to her kinswoman on the English throne for that succour she so much needed.

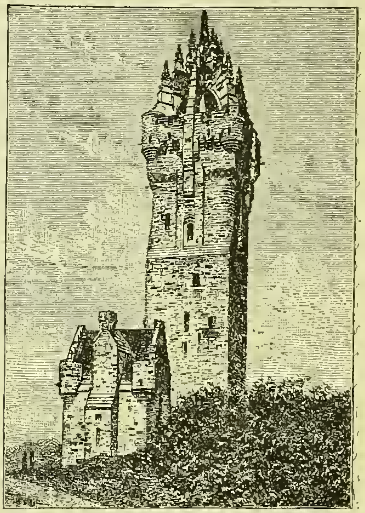


LINLITHGOW PALACE.

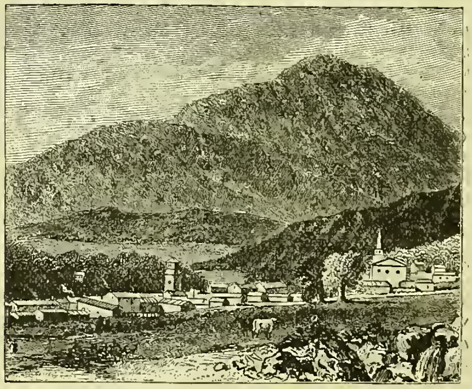
Linlithgow Palace and Loch soon came in sight, and, in passing though the station, the excursionists had a grand view of the palace and grounds. It was in this palace that Queen Mary Stuart was born. Until the train stopped at the Field of Falkirk for ticket-checking there was little else of note to be seen except the ruins of Emmanuel Priory, where King Edward is supposed to have resided in 1301, and where the train stopped was close to the scene of the Battle of Falkirk—one of the few spots in the district which the Sassenach can look on with pride, as here the English fought and conquered in 1298. But on resuming the journey, and passing the Forth and Clyde Canal and Larbert, another spot was pointed out which is dear to the heart of the Scot—the Field of Bannockburn, "Where," said an enthusiast, "though handicapped by three to one, our forefathers finally showed the sons of the South that Scotland was a nation that could never be conquered." Looking to the right the Abbey Crag was seen, on the summit of which a baronial tower has been erected as a monument to William Wallace. It was here that he mustered his troops when, in 1297, he went forth to battle with the English, from which he returned with the spoils of a glorious victory. As patriotism would have it, we now heard above the "clang clank" of the carriages the strains of "Scots wha hae wi' Wallace bled," with which musical honours the train steamed into Stirling Station, where a pharmaceutical contingent from the district joined the party.



FIELD OF BANNOCKBURN.

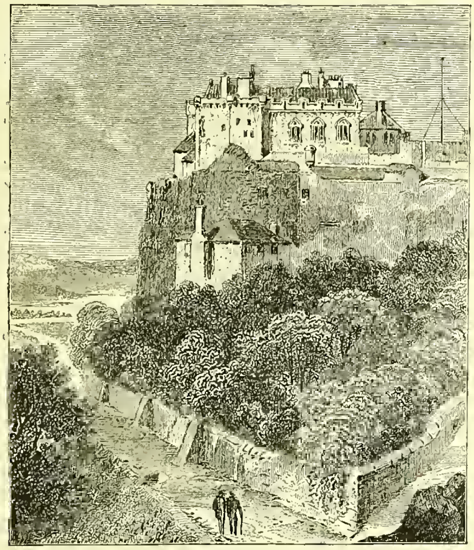


WALLACE MONUMENT.

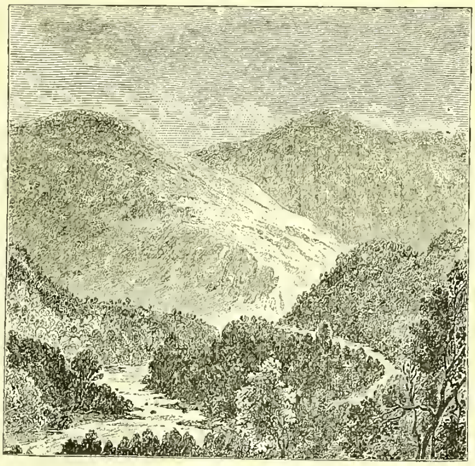


CALLANDER.

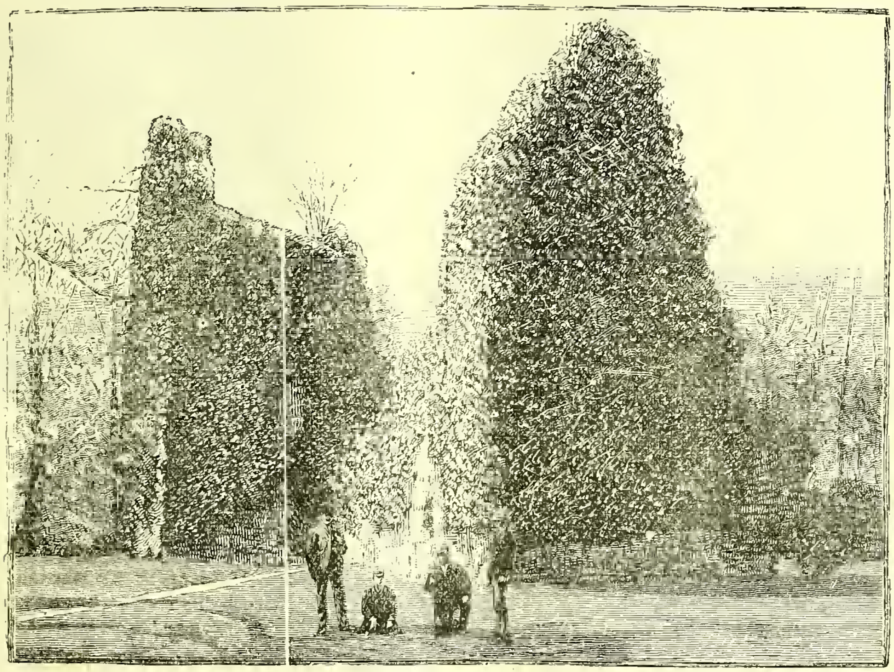
Once more resuming, Callander, the gateway to the Highlands, was the point aimed at; but before reaching it, and just after emerging from the station, Stirling Castle was seen; later, Bridge of Allan—the Bath of Scotland—a favourite resort for invalids; and, still later, Dunblane (the famed of Tannahill), where the train left the Scottish Central and entered upon the Callander and Oban line. From the carriages a glimpse was obtained of Dunblane Cathedral, now restored to somewhat of its pristine grandeur. At Callander the excursionists were in the very heart of "Scotland's hills." Creeping up through the Pass of Leny by the side of the river Teith, on the left passing the base of Ben Ledi and catching a glimpse of the summit, 2,875 feet up, and, on the right, the village of Kilmahog, with its pretty kirkyard, Loch Lubnaig, or the Winding Lake, was reached. Creeping along its western shore, where Ben Ledi and Ben Venne (2,685 feet) rear their lofty heads, the excursionists saw on the east the high road to Killin, and there also Beinn Bhreac—a stately mountain. This is the MacGregor country, which a handful of MacGregors could, once upon a time, defend against an army. Strathyre, a pretty little hamlet, was shortly afterwards passed, and we got a peep of the braes of Balquhidder. In the kirkyard here lie the bones of the "bold Rob Roy," and it is difficult to imagine a more peaceful resting-place for one whose life was so turbulent and so full of daring, though lawless, adventure. The scenery was now of the grandest description. Rich green pastures threw into bold relief the bare and rugged mountains, toned down here and there with the warmth of purple heather.



STIRLING CASTLE.



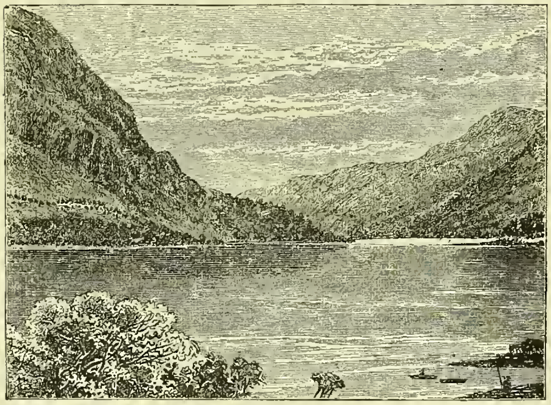
PASS OF LENY.



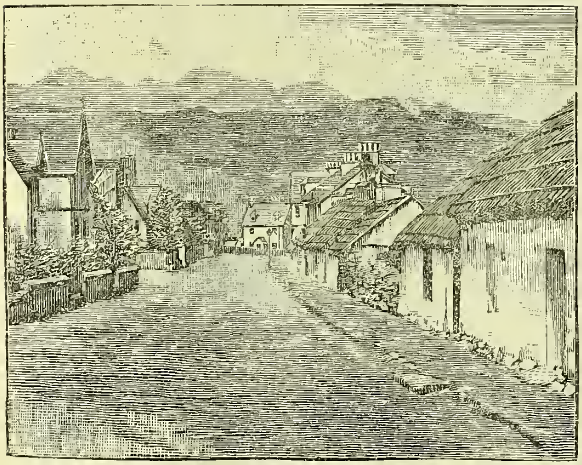
FINLARIG CASTLE.

Soon Lochearnhead Station was passed, and about a mile farther on we caught our first glimpse of the loch nestling in the valley below, its banks here and there dotted with whitewashed cottages surrounded by trees and shrubs. The wild and rocky Glenogle was here entered upon. On the one side the hotel lying in perfect peace, some 200 feet below the railway track. The ascent from this point to

Glenogle siding is very steep. On our left we passed a pretty little loch with a most unpronounceable Gallic name, and shortly after a halt was called, the engine was sent to the rear, and slowly the train slid down the slope till Killin Station was reached about noon. Now on foot to Finlarig Castle, where Mr. John B. Strachan, of the Abbotsford, Edinburgh, had his marquee erected and tables set with tempting viands. On the road, across the quaint bridge, up the noble avenue, and near the ivy-clad pile one could hear expressions of unalloyed pleasure at the scene around. The description of Dr. M'Culloch when he writes, "Killin is the most extraordinary collection of extraordinary scenery in Scotland—unlike everything else in the country, and, perhaps, on earth, and a perfect picture-gallery in itself, since you cannot move three yards without meeting a new landscape. Fir-trees, rocks, torrents, mills, bridges, houses—these produce the great bulk of the middle landscape under endless combinations; while the distances more constantly are found in the surrounding hills, in their varied woods, in the bright expanse of the lake, and the minute ornaments of the distant valley, in the rocks and bold summit of Craigchailleach, and in the lofty vision of Ben Lawers, which towers like a huge giant to the clouds, the monarch of the scene." These words well express the thoughts and feelings of many who on their way from the station to Finlarig kept their eyes open.

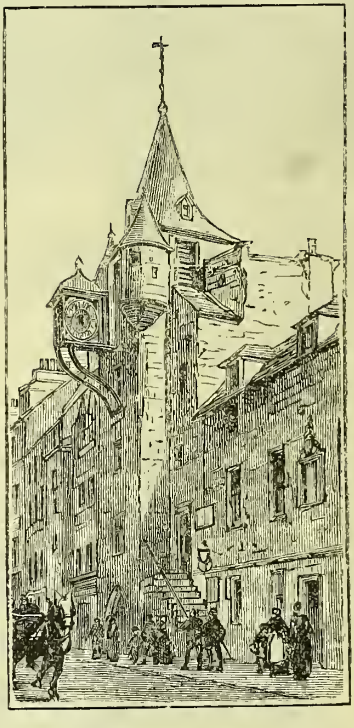


Loch Lubnaig.



Killin.

After justice had been done to the excellent luncheon provided by Mr. Strachan, the caterer, Mr. Ewing proposed the customary loyal toasts, followed by that of "The Marquis and Marchioness of Breadalbane." All these were responded to with much enthusiasm, the pipers playing the tune of "The Campbells are Coming" to the latter. Mr. Ewing next proposed "Prosperity to the Conference," coupled with the name of Mr. Stanford. He observed, amidst cheers, that it was Mr. Stanford who had made a long career of usefulness for the Conference possible. He had been one of the most excellent presidents it had possessed, and his conduct in the chair had been marked by courtesy and ability. Mr. Stanford, in replying, complimented the Edinburgh Committee, who had given the members such a splendid time. If anyone had been wanting to ask "Is the Conference going to live?" this meeting had decided the question for ever in the affirmative. Mr. Atkins then toasted "The Ladies of the Local Committee," thanking Mesdames Buchanan, George Mackay, and Brown, and Miss Dott, the compiler of the "Excursion Guide," for their part in the success of the meeting, and in associating the toast with the name of Mr. Allen, of Sheffield, who in a few humorous sentences said it was the Scotchmen who had introduced ladies to the Conference at Dundee. Mr. Martindale gave "The Local Committee," coupled with the names of Messrs. Boa and McLaren, who responded. Mr. Hill, was also thanked for his indefatigable services. Lastly, Mr. Reynolds said that a few months ago the Conference was like a sick man, but now it was out of danger. The physician who had had charge of its case was Mr. Ewing, and he had given the Conference promise of another twenty years' vigour.



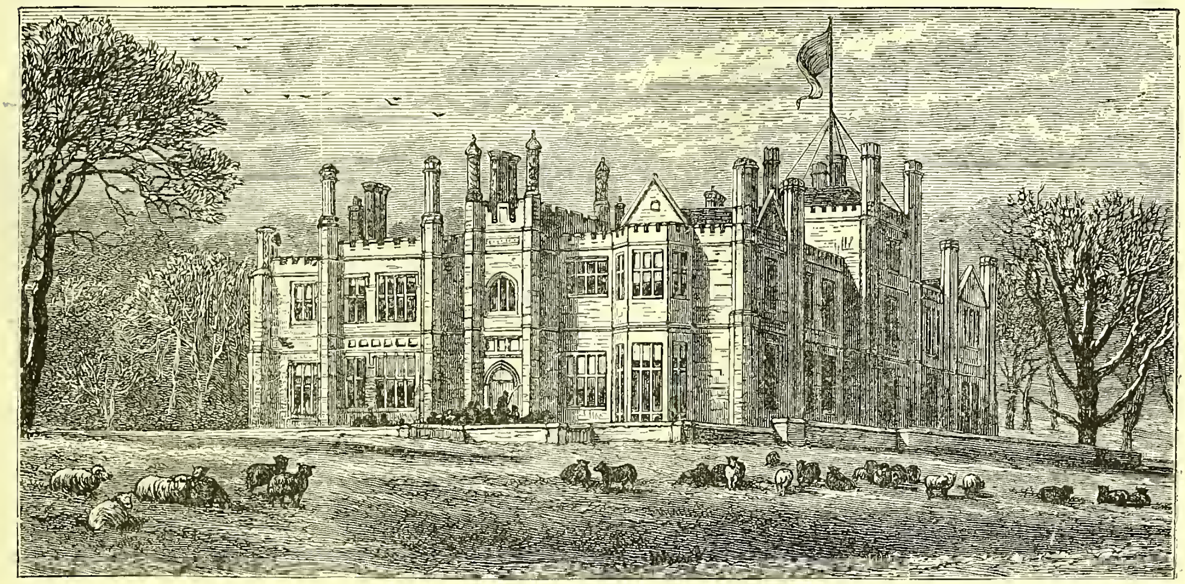
The Tolbooth.

"Upon the north side of the street (Canongate) stands the Tolbooth, containing at once the Court Room and Jail of the Canongate—a well-built edifice of stone, of the time of King James VI."—*Robert Chambers*, 1825.

After luncheon it was a case of each one for himself until tea-time. Some sailed on Loch Tay; some scaled the heights and looked down upon their less-aspiring friends; some did the village—in fact, there were many things done. There were to be seen the pine-covered islet which is the burial place of the MacNabs; Achmore House, one of the seats of the Marquis of Breadalbane, with its famous vine; Finlarig Castle itself, with its strange stone carvings representing events in past history. The story of these ivy-clad walls and rooms, where revelry and riot in days of yore held sway, was told by Piper-Major Duncan Campbell. The Campbell "used to sit on that Hill of Judgment" and weigh out even, or, perchance, uneven, handed justice. There, under that noble holly-tree, now some 600 years old, he gave forth the verdict, "They must die!" and tens and fifteens at his words were decapitated—the sort of thing done in Dahomey now. After tea there was a quick walk through the woody glade, by the banks of the Lochy, to the station, whence the train was timed to leave at 5 20, reachnig Edinburgh at 8 15 P.M.

Immediately after the Conference proceedings terminated on Wednesday, a similar party to that which started for Rosslyn on the previous day again took to the carriages for a visit to Dalmeny and the Forth Bridge by way of the Queensferry Road. The weather was pleasant at the start, being a trifle cooler than the previous day, and those who undertook the trip were rewarded by a magnificent view of the vast structure which spans the Firth of Forth not far from Dalmeny, the seat of Earl Rosebery, through whose beautiful grounds the carriages passed. The party were entertained to tea by Mr. and Mrs. G. Duncan Mackay, at Inveralmond House. Unfortunately the enjoyment of the latter part of the trip was slightly damped by a fall of rain.

The "smoker" held in connection with the Conference is always a success, and the enjoyment of pipe and glass by the jovial pharmacists at the Waterloo Hotel on Wednesday evening was of the topmost order, and running close for precedence with previous gatherings. A good musical programme was provided, and refreshments of the "special Scotch" order were on more than one occasion inquired for. Mr. Stanford presided, and showed that he excelled in the entertainment chair just as well as in the one of more serious character which he had vacated with so much honour in the afternoon. The proceedings were very jovial, and were kept up till a late hour.



Dalmeny: The Midlothian Residence of the Earl of Rosebery.

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Trade Notes.

Competitors for the prizes offered in our Summer issue by Messrs. Fletcher, Fletcher & Stevenson for formulæ of medicines made from their concentrated liquors are reminded that the samples are to be sent in to us before August 31.

The sale of the "culture of mouse-bacillus," by means of which Professor Loeffler, of Greifswald, lately destroyed millions of mice in Greece, thus saving the cereal crops in many parts of the country, has been entrusted by him to a Berlin wholesale drug firm. The professor will continue to manufacture the material at his laboratory in Greifswald.

"I have spent many pounds through the advertisements which appear in The Chemist and Druggist, which in return has also put many pounds in my pocket." So says a Demarara correspondent, in renewing his subscription this week. "This order is made up from The Chemists' and Druggists' Diary, 1892, and the figures referred to will be found therein." Messrs. E. Breffit & Co. (Limited) show us a lengthy order from New Zealand, with order on a London bank for payment, to which the words we have quoted are appended. References of this kind to advertisements in the Journal and Diary are much appreciated, and do good all round.

Spratts Patent (Limited) have lately introduced a "Pepsonated Puppy-meal," which they recommend as a food for both young and old dogs whose digestive powers are weak or impaired. This is sold in 1*s*. tins. They also supply a cooked puppy-meal in bags, intended to feed very young puppies with, to gradually introduce them to the biscuit diet.

Messrs. R. Barker & Son, of Manchester, send us a new label they are now using on their "Atkinson's Royal Infants' Preservative," the label bearing the announcement that "this medicine, containing along with its many other valuable ingredients a minute portion of morphine, is, in compliance with the Pharmacy Act, hereby labelled 'Poison.'"

Barclay & Sons (Limited) wish to put chemists, particularly in London, on their guard against a man who is calling on the trade and representing that he is a traveller in their employ. His method is to get an order-form or a bill-head from the chemist, on some pretext, which he then makes use of with a wholesale house. He has already obtained goods by this means from Barclay's and other firms.

BE PREPARED!

CHOLERA is rampant in Eastern Europe, and has reached Paris. Here at home the mind of the public is already alarmed. "**SANITAS**" Disinfecting Fluid is the only Disinfectant that can be taken internally, and the "SANITAS" DISINFECTANTS and APPLIANCES have the Largest Sale in the World.

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NEW PRICE LIST NOW READY.

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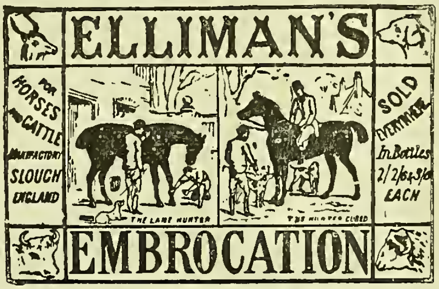

See first page, facing inside of front of cover, of first issue of this month, for latest particulars.

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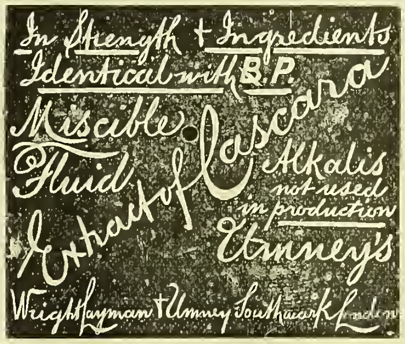
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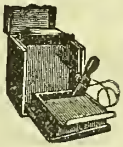
MEDICAL ELECTRICITY.



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Fletchers' Concentrated Liquors

TEN-GUINEA
Prize Competition.
See page 5, August 6th.

Editorial Comments.

THE CONFERENCE PAPERS.

THE meeting of the British Pharmaceutical Conference in Edinburgh this week is one which will long be remembered in the annals of pharmacy. A cloud hangs over the body, for although the negotiations with the Pharmaceutical Council in regard to provincial meetings of the Pharmaceutical Society being held simultaneously with the meetings of the Conference have led to no result, it is an open secret that this is not an end to the matter. It will come forward again in another form, and if the younger body is not to be absorbed by the older one, the supporters of the Conference must come forward to its support promptly. There was evidence of that this week in the magnificent attendance, in the large accession to membership, and in the substantial amount of work transacted. Twenty-seven papers appeared on the programme, and of these seven only were taken the first day, leaving a score of them with much other business to be dealt with on Wednesday. The papers were quite up to the average standard, and elicited good discussions, which

Mr. Stanford directed and expedited with admirable tact. There is a week's good reading in the papers and discussions as we report them, and in accordance with custom we here summarise the more salient features of the proceedings in this department.

Digestion of Starches. Mr. Grierson made his *début* at the Conference with a useful paper on the behaviour of starches towards amylolytic ferments — malt and pancreatic extracts. He showed in the first place that discrimination has to be exercised in the selection of a starch for testing these extracts. Root-starches (*e.g.*, potato and arrowroot) digest much more quickly, and are better suited for the purpose, than seed-starches (*e.g.*, maize and wheat) Several other minor, but useful, points were noted, and Mr. Grierson also demonstrated that amylolytic digestion is completely stopped by 0·3 per cent. of HCl, therefore that such digestion cannot occur in the stomach. An excess of alkali has the same effect. Little was added to these facts in the course of discussion, except that Mr. Groves pointed out that although potato starch and arrowroot may behave similarly with the tests described, they differ greatly in some respects Mr. Gerrard also made a useful contribution to the discussion in which he drew a parallel between the digestion of proteids and carbohydrates, the former digesting more rapidly in dilute menstrua, and the latter having an opposite character.

Antidote to Strychnine. Mr. Mackenzie's contribution in regard to the use of the electro-magnetic current for the treatment of animals suffering from strychnine-poisoning did not appear to be taken quite seriously, the general belief being that apomorphine and chloral are the things to rely upon.

Lithium Salts. Some time ago Mr. W. H. Symons, in a note communicated to this journal, showed that commercial salts of lithium are not so satisfactory as they should be; they contain sodium salt, which Mr. Symons separated as chloride. The matter is still mentioned in the Conference Blue List, and Mr. W. Mair, of Dundee, took it up. He came to the conclusion that lithium carbonate and citrate of trade are "reasonably pure." He converted the salts into sulphate, and separated any sodium present by the U.S.P. process. This paper, as a "maiden" contribution, was received favourably, and Mr. Tyrer pointed out that purity is altogether a matter of price.

Valerianate of Zinc. A paper of a similar nature was next taken—viz., that by Mr. W. A. H. Naylor on "Zinci Valerianas, B.P." From careful analyses of commercial specimens the author showed that the valerianate of zinc used in medicine is not of uniform composition, and that it does not meet the requirements of the official tests; also that the valerianic acid used in the manufacture of this salt is prepared from an imperfectly purified fusel oil. The latter point, as one speaker pointed out, was the *crux* of the whole matter, the discussion mainly travelling round the vileness of German fusel oil and the superiority of the British. It is scarcely possible to expect, from what was said, that we may get a fusel oil which is amylic alcohol; but, with proper precautions, there appears to be no reason why manufacturers should not, by careful selection of the basic substance, ensure better quality of a valuable though almost effete medicine.

Carbo Animal. Purif. Mr. John Hodgkin had a decidedly good find in purified animal charcoal. The British Pharmacopœia gives a process for making this, the object being to remove from the charcoal from 70 to 75 per cent. of ash, and leave "about 2 per cent." in the purified article. But, as a matter of fact, the purification process takes out about 2 per cent., leaving the larger percentage in. Mr. Hodgkin reviewed other pharmacopœial processes, showing that the American one is decidedly the best, because it requires the use of most hydrochloric acid; but by no process whatever can a charcoal with 2 per cent. of ash only be obtained at a price which will permit its use in medicine. Mr. Hodgkin recommends the bone-black to be treated twice with hydrochloric acid (a suggestion taken from the recently published Italian Pharmacopœia), whereby a charcoal containing from 13 to 15 per cent. of ash is obtained. His paper contained very full particulars of the quality of the commercial and various pharmacopœial charcoals, and he also submitted proof that the charcoal, when properly purified, does decolorise. This turned out to be the important paper of the first day, and it led to a good discussion, in the course of which one chemist after another corroborated from experience all that Mr. Hodgkin had said about the inadequacy of the Pharmacopœia process. Much was said also regarding the decolorising property of charcoal containing a minimum amount of calcium phosphate, but the point was left in doubt.

Strychnine Salts. At an evening meeting of the North British Branch last session, the solubility of strychnine acid sulphate in water was discussed by Mr. George Coull, who showed that 1 in 44·5 at 15·5° C. is the figure. Mr. Dott, taking up from this point the solubility of strychnine salts generally, informed the Conference that the hydrochloride is the most soluble salt—viz., 1 in 35·5—the tartrate being 1 in 52, and the citrate 1 in 37. Mr. Martindale initiated the discussion on this paper. He said that he still gave preference to the acid sulphate of the alkaloid because it dissolves in water by a simple shake, upon which Mr. Coull somewhat ironically pointed out that Mr. Martindale missed the point of the whole matter—viz., that the acid sulphate dissociates into the neutral sulphate and sulphuric acid on being treated with water. Mr. Dott corroborated this, and the hydrochloride was left in possession of the field.

Eucalyptol. The day's proceedings concluded with a paper by Mr. R. H. Davies and Mr. Pearmain on the properties of eucalyptol. They have obtained it in a bright state of purity, and have definitely determined its specific gravity (·927) and optical properties, and add some other useful information regarding eucalyptus oil.

Tuesday ended with a protest from the manager of the local excursions against taking more scientific business on the stroke of four. Roslin Chapel was to be visited, and there was barely time to do the visit comfortably, so Mr. Gerrard, who had taken the platform, retired.

Wednesday began vigorously, but there was by far too much work in hand. Some authors appeared to have no conception of the fact that five hours only were available for the business of the day, and three of them succeeded in taking up a third of the time.

Red Precipitate Ointment. The ointment of red oxide of mercury (Mr. Frederick Davis calls it "ung. hyd. nit. oxyd. B.P.) is apt to be lumpy, because it is made with hard and soft paraffin—the hard, on cooling, congealing more rapidly than the soft paraffin. That is the condition of most of the samples obtained in trade; and Mr. Davis suggested that the pot containing the melted paraffins should be placed in a pan of hot water, and stirred intermittently while it cools. So made, the ointment is not lumpy. As Mr. Gerrard pointed out, there is nothing new in all this; it had been discussed in THE CHEMIST AND DRUGGIST a few years ago. Mr. T. F. Abraham deprecated the use of hard and soft paraffins for ointments, on the ground that the soft paraffin exudes and leaves a hard mass on the skin; but this opinion was not endorsed.

Podophyllum Emodi. Mr. J. C. Umney communicated a note on the resin prepared from the Indian podophyllum-root, in which he showed that the resin is deficient in podophyllo-toxin, and contains an excessive percentage of podophyllic acid, these and other characteristics inducing him to deprecate the introduction of this podophyllum resin into the Pharmacopœia. Mr. John Moss agreed with that opinion.

Estimation of Grape-sugar. Mr. A. W. Gerrard described, and gave a demonstration of a new method of estimating grape-sugar in urine and the like. It is an adaptation of Fehling's test, the object being to overcome its disadvantages. Mr. Gerrard finds that by doubling the quantity of copper sulphate in that solution, and adding a certain amount of potassium cyanide immediately before operating, the copper is not acted upon—*i.e.*, is not precipitated until the amount equivalent to the percentage of sugar in the solution is passed. The commencement of precipitation is, in short, the end point of the reaction. The process is ingenious, and the meeting appeared to think so, although some doubts were expressed as to its accuracy.

Potassium Bromide. Commercial potassium bromide seems to be of poorish quality. Mr. D. B. Dott reported that he had examined three samples, and of these one contained 1 per cent. and another about 4 per cent. of potassium chloride. The remarkable point is that these samples passed the Pharmacopœia test for chlorides. In consequence Mr. Dott suggested that the salt should be tested by passing chlorine over a known weight during fusion, and determining the loss when all the bromine has been driven off. Mr. Stanford, commenting upon this paper, said that it was impossible to get potassium bromide absolutely free from chloride.

Jambul. Mr. Thomas Stephenson, of Bombay, communicated a note, in which he showed the effect of jambul in retarding the conversion of starch into sugar, he apparently being of opinion that this is the reason why the drug is of benefit in the treatment of diabetes. This assumption was questioned by several speakers, but there was a fair agreement that jambul is beneficial in the treatment of the disease, especially when used as Mr. Stephenson indicated—viz., fresh seeds freed as far as possible from pericarp.

Caffeine. Mr. A. H. Allen made a statement regarding experiments which he has made on the behaviour of the caffeine of tea towards solvents. Generally, his results show that, owing to the presence of tannin in tea, it is exceedingly difficult, after treatment of the tea with alkali, to remove all the caffeine with ether, benzine, chloroform, or alcohol. As a method of assay, he suggests that a weighed portion of the tea be boiled with water for six hours, the decoction then treated with lead acetate (to precipitate colouring-matter), evaporated, and the alkaloid dissolved out with chloroform. Dr. Paul disagreed with Mr. Allen on many points, and freely criticised the communication.

Chloroform. Quite a lively controversy next depended on a paper by Mr. David Brown, on "Tests for the Purity of Chloroform." Mr. Brown considered the colour-test with sulphuric acid and the smell-test of the B.P. to be inadequately described, and suggested improvements, also recommending that Professor Ramsay's baryta-test for decomposition products should be adopted in the Pharmacopœia. The discussion was a repetition of much that has been said during the past year regarding chloroform fatalities, and there was general sympathy with Dr. Clark's statement that doctors and chloroformists have lost their heads about chloroform, for the impurities, if they exist, are comparatively innocuous bodies. In the course of the discussion the statement was elicited that the only sample of chloroform which Mr. Brown found to be pure was one made from acetone.

Test for HCN. Mr. H. Bowden, of Patricroft, a "Corner for Students" prizeman, gave the Conference a taste of his analytical ability in a note on "Vortmann's Test for Hydrocyanic Acid," which was suggested by the blue list. The test consists in adding a few drops of potassium nitrite solution to the solution containing the acid, then three drops of ferric chloride solution. The brown precipitate which forms is dissolved by sulphuric acid, the mixture boiled, cooled, ammonia added to it to precipitate the iron, from which it is filtered, and to the filtrate ammonium sulphide is added in very small quantity. In the presence of hydrocyanic acid a pink-purple colour is now produced, which changes from blue and green back to pink-purple. Mr. Bowden determined that as small a quantity as 0·00001 gramme of HCN can be detected in this way.

Aloes. Mr. E. M. Holmes communicated some very interesting particulars regarding the manufacture of Curaçao aloes, and described the appearance which the drug presents when prepared under certain conditions.

Chemical Manufacturers. Mr. George Coull's notes on "Quinine Phosphate, Barium Hypophosphite, and Phosphoric Acid" were very useful contributions to the large mass of information communicated at the meeting regarding the quality of commercial chemical products. In regard to quinine prosphate, he showed that the English article differs in composition from the German, the latter containing more quinine. Barium hypophosphite he considered to be almost anhydrous, and in syrupy phosphoric acid he found a trace of silica, which is separated on dilution, and is found to be troublesome when making the solution of ferrous phosphate. The discussion upon these notes was long, and the members apparently resented the manner in which the technical chemists took up their time with commercial questions. It is not impossible that the Conference will have to take more decided action in regard to the purity of medicinal chemicals, with special reference to the disposition of retail buyers to purchase cheap and professedly B P. articles. One could not help feeling, in the course of the discussion, that if every dispensing chemist made daily use of Proctor's "Manual of Pharmaceutical Testing" such discussions as this one would seldom be heard.

Melting-points. Mr. Proctor's colleague-partner, Mr. Clague, then had the ear of the meeting for two very useful papers on "The Melting-point of Cacao-butter" and "The Determination of Melting-points by Capillary Tubes." In the former subject the author showed once more that the commercial article by no means conforms strictly to the Pharmacopœia requirements, and this is in part due to the degree of heating to which the butter is subjected. His observations in regard to the second subject were of great interest, and clearly demonstrated the impropriety of using capillary tubes of indefinite standard for taking melting-points.

Tincture of Cinchona. Messrs. E. H. Farr and Robert Wright presented a paper in continuation of the work on tincture menstrua, which they first reported upon separately at Leeds two years ago, and have since carried on conjointly. The present paper dealt with tincture of cinchona, and after glancing at the literature of cinchona galenicals in pre-1885 B.P days, which has not much bearing upon red-bark preparations, the authors showed that aqueous preparations of the bark do not and cannot represent the full alkaloidal value of bark. Their present work comprises, first, the selection of an assay process, which is to dilute a measured quantity of the tincture with water, adding an excess of soda, washing out the alkaloids with chloroform, converting the alkaloids into salts with acidulated water, again adding soda, extracting with chloroform, drying and weighing. Second, determining what is the most suitable menstruum. This was found to be 70 per cent. alcohol, as a tincture made with this contained the maxima of extractive (6·14 per cent.) and alkaloids (1 per cent). Thirdly, proving that the most suitable process for preparing the tincture is macero-percolation, maceration alone (which some consider to be better than the official process) being very far behind.

Analysis of Commercial Myrabalans Mr. A. Campbell Stark gave a very painstaking and elaborate paper touching upon the proximate analysis of myrabalans. He gave the result of his experiments with various solvents and reagents, tabulating them as he went along. It is worthy of note that he estimates the percentage of tannin at 20·6 per cent., being much lower than that given by Allen, which was from 20 to 40 per cent.

Filter for Mayer's Estimations Mr. Bird, as will be seen from the diagram given on another page, has devised an ingenious apparatus by the aid of which he can easily and quickly ascertain, without disturbing his alkaloidal solution, when precipitation is at an end.

Estimation of Phenol. Mr. Carswell contributed a paper full of equations and diagrams, but time did not allow of its being submitted in a form which rendered it instructive. Perhaps had the author been fortunate in coming on while his audience was fresh, he might have received attention commensurate with the time and trouble the paper must have cost him.

Oil of Lemon and Essence of Lemon. Two interesting, and to a certain extent practical, papers dealing with essence of lemon from the spot where it is produced, by Mr. Arthur A. Barrett, had to be taken as read. He referred to the distrust manifested by Englishmen in respect to the concentrated oil, and mentioned that he had met with certain oils containing as much as 15 per cent. of turpentine which were superior to pure oils. His statement that the worst qualities of essence of lemon all go to London, Manchester, and Glasgow, is worth noting, but needs confirmation.

Lycopersicon Esculentum. Mr. Fred. Davis wound up the papers with a note upon a volatile oil which he has found in the tomato, but this was also one of the papers which was crowded out.

Place of Meeting. Among the concluding business of the Conference was the discussion of the motion of which Mr. J. C. C. Payne, of Belfast, had given notice last year, to the effect that in future the Conference should not meet in the same town or at the same time as the British Association. The advantages connected with the separation of the rival attractions had been so keenly experienced by the visitors at Edinburgh that Mr. Payne's motion had an exceptionally favourable breeze to carry it through. It was shown that there was nothing in the constitution of the Conference linking it to its more imposing relative, and having added a few words which left the Conference free to do as it pleased, the meeting adopted the resolution unanimously, and immediately after accepted a cordial invitation to Nottingham next year. Mr. Octavius Corder, of Norwich, was selected as the next President, and the business-part of the proceedings ended with several votes of thanks, which have never been better deserved.

The generous hospitality of the Edinburgh pharmacists, and the charms of the excursion into the Highlands, which wound up the meeting, cannot be adequately dealt with at the fag-end of this long article, but several scores of Southern trippers will never forget them.

KEEPING STEP.

The eminent men who founded the British Pharmaceutical Conference at Newcastle in 1863 may be very fairly asked to let that achievement rest for a while at any rate. We should think everyone present on that memorable occasion has by this time contributed his pebble to the heap which is to mark through history that notable event. We are quite willing to dignify that heap with the title of an Ebenezer, which is apparently the latest method of describing it, if we can thereby purchase a little respite from the almost too persistent iteration of the importance of the occurrence. We apologise to Mr. Stanford for making these observations on the occasion of his presidency, for he can hardly be said to have egotistically referred to the inaugural meeting. He has been so long separated from direct association with pharmacy proper that he may well claim to regard it and its interests from an independent standpoint.

But for that very reason, perhaps, he is inclined to gaze on it a little too admiringly. He sees in it an Association which has grown more rapidly than its best friends could have anticipated—a view somewhat ironically emphasised by the report of the Executive Committee which had immediately preceded the delivery of his address. The twenty volumes of its "Year-books" are evidence of its success in encouraging pharmaceutical research, and its five meetings in Scotland seem to be suggested as the proofs of its success in "the promotion of friendly intercourse among pharmacists." The testimony strikes us as a little thin, but we have no desire to challenge it. The Conference has been a queerly managed organisation, and the wonder is that its nurses have not suffocated it before this. If there is any real desire for its health and longevity, its well-wishers should substitute criticism for laudation for once in a way.

Among the most valuable of the assets of the Pharmaceutical Conference may be reckoned the now long series of Presidents' addresses on record. These offer an abundant variety of samples to choose from. But the unhappy heir of the ages who finds himself planted for a twentieth or a thirtieth contribution of the kind may well survey the long series which confronts him with a feeling the reverse of thankful. The topics, the styles, the exordiums, and the perorations must have all been pretty well used up by this time, so that with a knowledge of the strict, if unwritten, limitations which custom prescribes for these exercises we watch with an almost painful interest the supply of the demand. Just as in the acrobatic business the new aspirant for popular favour must attempt some new and more daring feat than that which any predecessor has accomplished, so the new President must catch our jaded fancies with some new ideas, some novelty in the way of compliments, some fresh form in which to clothe the instruction which it becomes his duty to convey. A great part of the interest in the performance centres in the anticipation of the ingenuity with which this task will be fulfilled.

Mr. Stanford hit on a very happy thought. He set himself the problem, Has our pharmacy kept pace with the general advancement? An ideal text for a Presidential address. The possibilities of development in discussing it are obvious. The wide field of advancement in every department of science and industry are open to the speaker, and all are made cognate with pharmacy.

It should be at once admitted that Mr. Stanford used the advantage which his tactics had secured for him mercifully. His address is one of the longest we have printed, but in view of his opportunities it might easily have been twice the length. Moreover, its length is disguised by its perpetual variety. No one in the Conference can touch with a lighter hand the topics broached, or can remind us of facts which we ought to know but do not, in a more pleasing manner.

May we add, with due reverence, that no one more skilfully than he can avoid the grip of the argument which he had himself suggested? As Shakespeare left future generations to contend over what he meant by "Hamlet," so this year's President of the Pharmaceutical Conference leaves us in the dark as to the answer to the riddle which he has propounded. Is pharmacy keeping step with other arts, with other occupations? We may form our own opinion, but the most patient reader will not ascertain Mr. Stanford's from his speech.

But the question is an interesting one. A generation has about passed by since the Conference was founded, and during that period vast material progress has been made all around us. "The parcel-post, the sixpenny telegram, the telephone, the phonograph, the microphone, and the type-writer have all been added since our birth-year," says the apologist of the Conference. We hardly suppose he wishes to suggest any other connection than coincidence, but there is a certain complacency about the form of expression which reminds one of Sir Wilfrid Lawson's belated passenger, who, jumping on a steamer as she left the pier, fell stunned for a few minutes on the deck, but looking back when he recovered, saw the distance between the steamer and the pier, and remarked, "Jehoshaphat, what a jump!" The President shows that within this generation the trade of this country, as well as it can be estimated, has about doubled. He does not even venture to inquire whether the trade of pharmacy has doubled in that same period. A President may refer to trade in bulk, but it would never do to narrow the inquiry down to the groove in which his hearers themselves move. It may be that not many individual pharmacists—or "pharmacians," as Mr. Stanford not too euphoniously calls us—would assert that their businesses, or, at any rate, their profits, have doubled in the past thirty years, but that argument would be hardly to to the point. In a survey of this kind we cannot trouble about the individual. "So careful of the type she seemed, So careless of the single life." There would be, however, we think, plenty of evidence in support of the theory that in bulk of trade, or at least in the amount of turnover, pharmacy has well kept step with the general progress. We judge this from the evidently much larger and more numerous wholesale and manufacturing businesses closely connected with our business now in existence as compared with those in the fifties and sixties. Educationally, we have had a hard fight to keep up with our customers. The nation has been educated systematically in this generation, and so have chemists; and, comparing bulks, it may, we think, be fairly said we maintain our relative position with the public. In inventions and research, we do not believe pharmacy can claim to compare with other industries in which applied science is the moving factor. Pharmacy has done something to make human life happier, by making its medicine less repulsive; but this credit is due exclusively to private enterprise. The bodies organised "to promote pharmaceutical research," have had no part nor lot in this labour.

Then, on the whole, has pharmacy been justified of her children, these twenty-nine years past? We will not venture to rush in with a dogmatic opinion where a President fears to tread, but we may thank him for offering us that puzzle, and join with him in raising (not putting down, as he inaccurately expresses it) our Ebenezer, and hoping, as he does, for the possibility of greater achievements than those which even the British Pharmaceutical Conference has yet accomplished.

COMMENTARY.

Pharmacy in India.—The *Indian Medical Gazette* deplores the condition of pharmacy in India as compared with what it is in Great Britain. There are a great many in the former country who have had no proper pharmaceutical education and have passed no examination of any importance. The *Record* thinks, however, that, looking back into the history of pharmacy in India, there is reason for congratulation and hope of reform. Only a decade ago there was no restriction on the practitioners of pharmacy, and no guarantee was required by Government from the keeper of a drug-store or chemist's shop of his fitness to carry on such trade. But now there is a Compounders Act and a meagre form of examination. There is, however, a very prominent and barefaced defect in the present system of Governmental examinations for a dispenser's certificate of qualification. The men who are examiners on this Board are all hospital assistant-surgeons: there is not a single practical pharmacist on the Board. The whole thing is an anomaly and a burlesque, and Indian pharmacists complain of the incapability of the holders of Government certificates in all matters relating to general pharmacy. As the fault lies in the constitution of the Board of Examiners, the Government should take up the consideration of the following reforms:—

1. A preliminary examination in English, Latin, and arithmetic up to vulgar and decimal fractions, including a proper knowledge of the British metrical systems of weights and measures.
2. A proper system of registration of apprentices to obviate fraudulent certification and to ensure a three years' education in pharmacy, materia medica, botany, and chemistry.
3. A Board of Examination consisting of four Government medical officers and four independent pharmaceutical chemists, with an *official* as president.
4. An Act making it compulsory for none but certificated pharmacists in all places where medicines are compounded.

We cordially support these suggestions generally, but the whole question of the dispensing and sale of poisons in India requires to be thoroughly looked into by the Government. The *Record* speaks about "medicines," which is a somewhat wide term for India.

The Poisonous Principle of Yew.—Writing to the *Times* in regard to the poisonous properties of yew-leaves from Downton Agricultural College, Lieut. Stuart Wortley states that, owing to a suggestion by Mr. E. P. Squarey that male yew-leaves are poisonous and the leaves of the female plant not so, he had submitted both kinds to chemical examination, with the result that he had obtained from an alcoholic extract of the male leaves an alkaloidal residue which was (1) of a bitter taste; (2) gave with ferric chloride a deep green colour (tannin or protocatechuic acid); (3) gave with iodine an immediate precipitate; (4) with litmus-paper the liquid was slightly acid; (5) a few drops of ammonia were added to the main solution and caused a slight precipitate. The liquid turned dark at the surface, showing the presence of pyrogallic acid or some similar compound; and (6) the ammoniacal liquid was shaken with benzine and the benzine pipetted off. On evaporation it left a bitter residue, which dissolved in pure sulphuric acid with a deep-red colour, thus agreeing with the recognised character of taxine. Reactions 3, 5, and 6 were obtained, only very feebly, with the female leaves, and Lieut. Wortley concludes "from the experiments that taxine, whether or not it is the poison affecting cattle, is contained chiefly or entirely in the male yew, and that if it is the poison, the female yew may safely be planted as an ornamental tree in parks and pastures where cattle are turned out." This, we think, is a somewhat unwarranted conclusion. That yew-leaves contain an alkaloid is true, for Amato and Caparelli isolated one ten years ago, but the toxicity of that alkaloid has not yet been demonstrated. It is doubtful if the body called "taxine" is an alkaloid. Opinion is in favour of the statement made by Mr. John Williams many years ago that it is simply an irritating, resinous body, perhaps of the nature of a glucoside. Before Lieut. Wortley's suggestion is acted upon more satisfactory proof of the non-irritating properties of the leaves of the female plant should be given. It is worthy of note that infusion of yew-leaves is non-poisonous, which is rather against Lieut. Wortley's theory, for the infusion would contain the alkaloid but not the irritating, resinous body.

Legal Report.

THE IRISH PHARMACY ACT.—THE PHARMACEUTICAL SOCIETY OF IRELAND *v.* GORMAN.

AT the Bangor (co. Down) Petty Sessions, on August 17, the Pharmaceutical Society of Ireland sought to recover penalties against Thomas B. Gorman, Bangor, for that he (*a*) on April 30 and July 20, at Bangor, did unlawfully keep open shop for retailing, dispensing, or compounding medical prescriptions, and did sell a certain medical prescription to one Andrew Downey, contrary to the provisions of the 38 and 39 Vic., cap. 57, sec. 30, he not being a person qualified in that behalf according to law; and also (*b*) that, on July 20, at Bangor, he did assume and use the title of dispensing chemist, contrary to the provisions of the 38 and 39 Vic., cap. 57, sec. 30, he not being a person qualified in that behalf according to law.

Mr. M'Grath, B L., appeared on behalf of the Society, and Mr. Andrew M'Erlean defended.

Andrew Downey, in reply to Mr. M'Grath, said he called at the shop of Thomas B. Gorman on April 30 last. He had the prescription produced, which he had got from Dr. O'Connell.

Mr. M'Erlean objected to the prescription being put in as evidence, contending that Dr. O'Connell should be produced to say whether he wrote it or not.

After some discussion, the examination of the witness was proceeded with by Mr. M'Grath.

Witness said he asked to have the prescription filled. He had to wait about half an hour for it. While it was being made up he paid 1*s*. 3*d*. for it. The bottle of medicine (produced) had been in witness's possession ever since. The label the bore address "John Gormar, Pharmaceutical Chemist, Bangor." On the windows of the shop witness saw printed "Dispensing Chemist," and above the door was "Gorman, Druggist and Chemist."

Mr. M'Grath, at this stage, read a letter from the defendant, in answer to a communication which he had received from the Registrar of the Pharmaceutical Society, informing him that he was proprietor of a drug establishment in Bangor, and that his brother, Mr. John Gorman, occupied part of the same premises, where he compounded prescriptions entirely on his own account, being a duly qualified pharmaceutical chemist.

Cross-examined by Mr. M'Erlean: Might I ask you where you were born?—In Belfast. What part of it?

The Witness: Have I a right to answer that question?

Mr. M'Grath: Answer all these questions.

By Mr. M'Erlean: Where were you born, Mr. Informer?

The Witness: I was born where Lombard Street now stands. Formerly Caddell's Entry?—Yes. Have you lived in Belfast since you first saw the sunshine in Caddell's Entry?—No, sir. Then where have you lived?—In other parts of Ireland, England, East India, and America. You would not tell a lie?—I do not think I would.

Mr. M'Erlean: Well, it is a bad thing to do, my man.

The witness: There is very little to be gained by it.

Mr. M'Erlean: Did you ever live in Comber?—No. When you called for this bottle did you say you lived in Comber?—No. What was wrong with you when you got this prescription from Dr. O'Connell?—The same that is wrong with me at the present time, and that is a cold. Did you get it with the object of entrapping chemists and druggists?—Partly, I may say I did. It was entirely to entrap them?—Of course. Were you ever a member of the Pharmaceutical Society of Ireland?—No, sir; but from my being employed by chemists and druggists I became acquainted with the Society. What business, besides that of informer, do you carry on?—I am a grocer in Belfast? What street?—Sandy Row.

Mr. M'Erlean: "Oh, Sandy Row, my heart is thine where'er I go!" (Laughter.) To witness: What number?—130 Sandy Row. Have you ever appeared as a witness in such cases before?—Yes. For the mere love of justice?—Well, I am doing it now for the love of money. Who is to pay you—the Pharmaceutical Society?—I get my money from Mr. Galway. Are you swearing now for the love of money?—No. Did not you swear a moment ago that you were not swearing for money?—I spoke of the prosecutions, and not of the money. Are you aware that you are entitled to a part of the fine as an informer?—Yes. How long have you assumed the *rôle* of informer?—About four months. Is that the first time you commenced to act the part of an informer?—That is the first time I acted as an informer for money. Years ago I attended in other prosecutions. Was that in Belfast?—No, sir. Was it in Ulster?—Yes, sir. And did you get a conviction then?—Yes. Was it in Ballymena?—Yes. Was it against the Messrs. Beattie?—Yes. Is this the only department of the Government of this country that you are engaged at present in giving information to?—Yes. What did Dr. M'Connell say to you?

Mr. M'Grath objected.

Mr. M'Erlean: Had you any conversation with Dr. O'Connell about the use you were to turn this to?—No. Are you better of your cold yet?—No. Is it still sticking to you?—Yes. I see you were with Mr. Lyons, the chemist, in Royal Avenue, with this prescription?—Yes. And you were with Alexander Boyd & Co., Lisburn?—No, sir.

Mr. M'Erlean: I see you had it in Elliott's medical hall, Royal Avenue, Belfast, also?—It was a man named Hogg that had it there. In fact, you had it actually in Grattan's?—Yes, sir. And you got medicine in all of these places?—Yes.

Mr. M'Erlean: I think you ought to have a stomach like Vulcan's bellows after all the medicine you took. (Laughter.)

The Witness: I did not take it all. (Laughter.)

Mr. M'Erlean: You are a bad case. (Laughter.) Tell me, did you ever see Thomas B. Gorman in your life?—I do not know. Do you know who filled the prescription for you?—I would know the man if I saw him. Do you see the gentleman in court that filled it?—I do, but I do not know who filled it on the second occasion that I went to Gorman's.

Mr. Ferrall, Registrar of the Pharmaceutical Society, said defendant was not on the register which qualified him to compound medical prescriptions. He had written to him on June 7 asking to be furnished with the names of the *bonâ-fide* proprietors of the shop. Mr. Gorman replied on June 23 to the effect already stated, and subsequently stated that his brother, John Gorman, had ceased to compound medicines as he was studying for the medical profession.

Mr. M'Erlean asked the Bench to dismiss the case. After consultation the Chairman said they would like some evidence as to whom the premises belonged to.

John Gorman, examined by Mr. M'Erlean, said he was a pharmaceutical chemist. He was going on for the medical profession, and had only another examination to pass. Since being admitted into the Society he had taken part of the premises at Bangor occupied by his brother, Thomas B. Gorman, who was a chemist and druggist since July of last year. On both occasions witness himself received the prescriptions and compounded them.

Cross-examined by Mr. M'Grath: He paid his brother 12*l*. a year for the portion of the shop which he occupied. He (witness) gave up business about a week ago, as he had to prepare for his final examination. The words "Dispensing Chemist" were still on the window.

This closed the case, and their Worships, after consultation, dismissed all three summonses on the ground of insufficient evidence, and ordered Mr. Gorman to have the word "Dispensing" taken off the window.

THE IRISH PHARMACY ACT.—THE PHARMACEUTICAL SOCIETY OF IRELAND *v.* COSGROVE.

AT the same Court, on the same day Mr. Samuel Cosgrove, also of Main Street, Bangor, was sued for compounding medical prescriptions on April 30 and July 30. Mr. M'Erlean also defended in this case. Mr. J. S. Mahon appeared on behalf of Mr. William Hanna, an interested party.

Andrew Downey was the witness for the prosecution. He visited the defendant's shop on April 30 last, and asked to have a prescription made up. So far as witness could see there was no assistant in the shop at the time. He paid 9*d*. for the bottle. The defendant did not put any label on the bottle, but left on it that of Grattan & Co., of Belfast. On the second occasion witness was charged 10*d*. for the bottle.

Cross-examined by Mr. M'Erlean: Did you represent in this case that you lived in Comber?—No. Was it Mr. Galway that gave you the money to pay Dr. O'Connell for his prescription?—No, sir. From whom did you get it then?—From Mr. Lyons, chemist, Royal Avenue, Belfast. Do you mean to swear that Mr. Lyons, of Royal Avenue, gave you money to entrap his brother chemists and druggists?

Mr. M'Grath: I must object to such mode of cross-examination.

By Mr. M'Erlean: Very well. How much money did Mr. Lyons give you?—Half-a-sovereign. And did he tell you to go Dr. O'Connell?—Yes, sir. And get a prescription from him?—Yes, sir.

Mr. M'Erlean: I think you are not as bad as somebody else, my poor fellow, for perhaps you wanted the price of your dinner. (Laughter.)

To witness: How long were you away until you came back again to Mr. Cosgrove?—From April 30 till July 30. Did he then tell you that he could not fill up that prescription?—He did not. Did he say anything like that?—No. What did he say?—He wanted to make up medicine himself which, he said, would be much better. (Laughter.) After that you got the bottle?—Yes. It was on the first occasion that Mr. Cosgrove had offered to give me something himself. He had, at that time, read the prescription. When I said I would prefer to get what was in the prescription he gave me the bottle.

The Chairman: On the second occasion he filled the prescription with that remark?—Yes.

Mr. A. T. Ferrall gave formal evidence as to the qualifications of the defendant, who, he said, was not a pharmaceutical chemist, and consequently had no authority to compound medical prescriptions.

Mr. M'Erlean having addressed the Court for the defence,

The magistrates retired, and after a few minutes returned into court, when

The Chairman announced that they were unanimously of opinion that the defendant had committed two breaches of the Pharmacy Act; they would, therefore, fine him 5*l*. in each case, with a recommendation that the penalty be reduced to 21*s*. in each case.

A GLYCERINE TRANSACTION.

IN the City of London Court, on Monday, before Mr. Julian Robins (sitting as deputy for Mr. Commissioner Kerr) and a jury, an action was brought by Messrs. Fuerst Brothers, chemical-merchants, 17 Philpot Lane, E.C., to recover 49*l*. 9*s*. 3*d*. for glycerine, &c., supplied to the defendants, Messrs. George Hearn & Co. (Limited), of Hearn Street, Curtain Road, E.C.

Mr. Cannot, for the plaintiffs, said a company had been formed to carry on the business of George Hearn & Co, which formerly belonged to one William Collinson. The plaintiffs had supplied the defendants with glycerine, castor oil, &c., since 1885, the defendants supplying the plaintiffs with various chemicals. In February last, Mr. William Collinson owed the plaintiffs nearly 500*l*., for which judgment was obtained. Mr. Collinson then sold the business of George Hearn & Co. to a company, with which the plaintiffs continued their dealings. It was in respect of goods furnished to this company that they were now suing.

Mr. Cohen, counsel for the defendants, said he should not dispute the delivery of the goods; but he could not adopt the plaintiffs' figures, because they had not allowed for 12*s*., to which the defendants said they were entitled as discount.

Mr. Cannot said the defendants were not entitled to that, because it was only allowable for cash, and the defendants took three months' credit. The defendants had raised a counter-claim, and that was where the real dispute which the Court would have to determine came in. The present defendants had purchased William Collinson's book-debts, and now they said that the plaintiffs owed them 81*l*. after deducting the 49*l*. which was claimed. But the fact was that the plaintiffs had nothing whatever to do with William Collinson's debts. They did not know them in the matter. All they as plaintiffs knew was that William Collinson owed them 500*l*, and that if the defendants wanted to raise any account due from the plaintiffs to Collinson, then the plaintiffs would have to set up their 500*l*. debt.

Mr. William Gilchrist, assistant secretary to the defendant company, was called in support of the counter-claim. He said they took over Mr. Collinson's debts by an assignment, of which notice was given to the plaintiffs, and it was upon that that they based a greater portion of their counter-claim. They paid 60,000*l*. for Hearn's businesses as from January 1, the company agreeing to fulfil all uncompleted contracts and engagements then current.

Mr. Cannot objected to the evidence of what was alleged to be due under the assignment. They never had any notice of it.

Mr. Cohen admitted he had not the assignment. He did not know that the other side would object to take a copy as evidence; but contended that the assignment had been proved, and that it was admitted by the plaintiffs.

Mr. Cannot said in April they wrote telling the defendants that their 20 tons of glycerine ordered were ready, and would be delivered in fourteen days. No admission of the assignment was ever made.

Eventually, the Deputy Judge said as the counter-claim could not be proved strictly, he must reserve it so that the defendants could bring an action for it, and he must find for the plaintiffs on the claim, with costs. That was the best thing he could do under the circumstances. He did not like the way in which the plaintiffs had met the defendants on the counter-claim.

The jury were therefore discharged, without giving a verdict, and judgment entered for the plaintiffs on the claim, with costs, the counter-claim being reserved.

SELLING METHYLATED SPIRIT WITHOUT A LICENCE.

JOSEPH FLOYD, chemist, Soham, was charged at the Newmarket Police Court, on August 18, with having sold methylated spirit to an Excise officer at Soham, on May 25 last, without holding a licence for the sale of same. From the evidence of William Henry Wells, an officer of the Inland Revenue, it appeared that on the day in question he visited defendant's premises, and paid 4*d*. for half a pint of methylated spirit. He was served by defendant's son. L. W. Lowenthal deposed that he had warned defendant against selling the spirit. The defendant stated that the act of his son was unintentionally wrong, and he deeply regretted it. He had no wish to evade the law; but he did not purchase much methylated spirit at a time, and what little he did buy was only for his own purposes. His son had sold it without his knowledge and consent. The Bench inflicted a fine of 1*s*., and 2*l*. 2*s*. costs.

DANDELION COFFEE.

AT the Swansea Police Court, on the 20th inst., Richard Francis Bennett and Timothy Jones, grocers, were summoned under the Sale of Food and Drugs Act for selling some "dandelion coffee" alleged to contain no dandelion. The mixture was sold in tins, with the Government stamp thereon, and one sample was manufactured by Messrs. E. & J. Williams, and the other by Messrs. Jas. Lewis & Son, Cardiff. The analysis by Dr. Morgan stated that the mixture contained 75 parts of chicory and 25 parts of coffee in 100 parts, and consequently no dandelion. It was sold at 5*d*. per ¼-lb. tin. Mr. Rhys Edmunds defended, and cross-examined Dr. Morgan upon his analysis.—Dr. Morgan said he had applied the specific-gravity and colour tests. He had not subjected the alleged chicory to microscopical examination; he took the other tests as sufficient. He analysed it for chicory because it was well known that all dandelion coffees were chicory and coffee, and this was allowed at Somerset House. He knew that there was an appeal pending from this decision at Somerset House. The fact of it being roasted did destroy the organic structure so as to make it very difficult to distinguish between chicory and dandelion. He would not swear positively that the article in question was chicory, but he would swear to the best of his knowledge and belief it was. He had never analysed dandelion, but was looking for an authentic sample for the purpose.—The Bench dismissed the summonses, but did not allow costs, on the ground that there was sufficient reason for bringing the case forward.

The Irish Pharmacy Act.—The Pharmaceutical Society of Ireland *v.* Boyd.

On the 23rd inst., in the Southern Division of the Dublin Police Courts, Messrs. Walter Boyd, Samuel Boyd, and Samuel Parker Boyd, trading as Boyd & Goodwin, 6 Merrion Row, were summoned at the instance of the Pharmaceutical Society of Ireland for having on July 7, 1892, sold and kept open a shop for compounding medical prescriptions, and for that they did on that and subsequent dates compound medical prescriptions for one Thomas Farrell at 6 Merrion Row, contrary to the Pharmacy Act of 1875, they not being persons properly qualified in that behalf according to law. They were also summoned for having used the title "Dispensing Chemists," contrary to the Pharmacy Act, they not being persons registered as pharmaceutical chemists.

Mr. Robert Clay, of Messrs. Casey & Clay, prosecuted on behalf of the Pharmaceutical Society; Mr. Wiley, instructed by Mr. Blood, appeared for the defendants.

Mr. Clay said the action was brought under the Pharmacy Act of 1875, which was to prevent deaths occurring from misadventure. That was one of the objects of the Society, and, in bringing these actions, they were only discharging a public duty. The defendants were one of the most respectable firms in the city of Dublin, but that did not entitle them to any immunity if they committed an offence, which he had been instructed they had done. The Council of the Society had some time ago prosecuted a number of small traders in the city, and they were compelled to prosecute the present defendants in April last. On that occasion they had apologised for the infringement of the Act and had paid the full penalties and costs, and each of the defendants had signed an agreement not to repeat the offence. The Council of the Pharmaceutical Society were under the impression that the defendants would keep faith with the public, but they had not done so. If an unqualified person compounded in an unqualified proprietor's shop the danger to the public in the shape of misadventure would be serious. The Act was passed for the protection of the public. Mr. Clay then read the summonses against the defendants.

Thomas Farrell was then examined by Mr. Clay.

Mr. Clay: Have you a prescription in your possession which you presented to the defendants?—No, sir; but I have the bottle which I got on July 7 [bottle produced]. I gave it in and asked the Messrs. Boyds to repeat it.

Mr. Clay then asked for the entry of that prescription in the books of the defendants to be produced.

Mr. Wiley: There is no entry of such prescription—we have not got the entry which Mr. Clay mentioned.

Mr. Trevor Wright was next examined. He was called upon by Mr. Clay to produce his books.

Mr. Wiley: I decline at the present to expose our books. This prosecution has been got up purposely to affect our trade, by other traders.

Mr. Clay: I am not a rival trader. I am here for the Society.

The witness produced books, and showed that no entry had been made in reference to the compounding of the prescription. He denied that they had any prescription in the name of Farrell in the books except in February.

Mr. Clay said that in consequence of the action of the defendants, the Society could not, by their own inspectors, get convictions, and they had to get strange men. This inspector had brought in an empty bottle belonging to a Mr. Young and they had made up the medicine, and it was proved that it had been made up on a previous date.

Witness: I never make up a prescription.

Mr. Clay: I know that, you are not a qualified gentleman; but a prescription is made up, which is an internal prescription, and you make no statement about it.

To Mr. Wiley witness said that the date of the prescription in reference to the bottle was February 10.

Thomas Farrell was recalled, and said that when he entered the shop he saw a gentleman whose name he believed was Best. He told him if he called back in half an hour it would be made up for him. He called back for it, and received it sealed up, and paid for it.

Mr. Clay: You see "Dispensing Chemists" marked on the bottle?—Yes. I paid 1*s.* 6*d.* for it; I then gave it to an inspector of the Society.

Mr. Wiley: Who was it put you on this job? Was this the first time you were in Boyd & Goodwin's?—No. I had been there the previous day, but I did not get the bottle made up that day; I said I was in a hurry.

Mr. Wiley: Did you go there to entrap these persons?—No: the inspector asked me to go there.

Were you not told that they were not compounding medicines?—No. Did you not go there for the purpose of getting this made up to show that they were evading the Act?—Yes. I did not examine the shop to see about the labels. Had you any other prescriptions made up there?—Yes; and they were made up in my presence.

The witness gave further evidence as to the defendants entitling themselves "Dispensing Chemists." He proved that he had had a draught made up in the place, and he had also the bottle referred to repeated. He had also got in the shop a "pick-me-up" which he drank and paid for.

Some bottles were then submitted in evidence which bore on the labels the words "Pharmaceutical Chemist."

Do you remark on one bottle the name Furlong?—Yes.

His Worship (to Mr. Wiley): Do you dispute the making-up of the prescriptions?—Certainly; but we do not dispute making them up in Mr. Furlong's.

Mr. Clay (to the witness): What did you get in addition to the bottle?—A box of ointment.

Mr. Clay: Now, I hold they keep open their shop for the sale of medicine.

Witness: I purchased it for 2*s.* 2*d.*

Mr. Clay then produced an envelope on which Messrs. Boyd & Goodwin were described as pharmaceutical chemists, which was also an offence.

The witness further said that on another occasion he handed in an empty box, and then he saw one of the gentlemen looking over the leaves of a book, and he told him to return in half an hour, and then he paid 2*s.* 4*d.* for the ointment.

His Worship: Is it not the case that they were made up in Furlong's?

Mr. Wiley: Yes.

Mr. Clay: Then we will get Mr. Furlong.

Mr. Wyley: We got them made up in Furlong's, and nowhere else.

Mr. Wiley said the firm had used bottles or bills with the words "Pharmaceutical Chemist" upon them, but after the last prosecution the system was discontinued, and Mr. Boyd had given instructions that no label with "Pharmaceutical Chemist" should be used, and what had occurred was owing to an oversight, and he did not think his clients could be held responsible for it.

Mr. Thomas Furlong, 17 Upper Merrion Street, was then examined, and, in reply to Mr. Clay, said he was in the habit of making-up prescriptions for the defendants, who received a profit from them of 20 per cent. It was one of his assistants who was not qualified that made up some of the prescriptions. He first compounded for them in April, 1892. He had no entry of making-up a bottle in the name of "Young" on July 7.

His Worship said that the witness Farrell had proved that he had a bottle made up in the name of "Young."

To Mr. Wiley: Mr. Furlong said that the medicines ordered by the firm had been made up in the ordinary way.

Mr. Clay: How much did you charge Messrs. Boyd & Goodwin for the bottle?—1*s.* 8*d.*; I allow them 20 per cent.

Dr. Evans proved that the prescriptions referred to were of a medical character.

Mr. Wiley said that some of their assistants had acted contrary to instructions.

The summons against Mr. Samuel Parker Boyd was withdrawn, as it was stated that he had no connection with the firm.

The summonses were amended by the words "sell" and "retailing" being struck out.

Mr. Best was examined for the defence. He had been eighteen months in the employment of Messrs. Boyd & Goodwin, and was a pharmaceutical chemist. He had directions from Messrs. Boyd not to compound or label medicines, and they had got labels to cover those which had been on the old bottles and boxes before the conviction in April. He could not say if he had compounded medicines in July, but admitted making up a mixture on July 11.

Mr. Clay said that the labels issued by the defendants held out to the world that they were pharmaceutical chemists.

Witness said a lot of the labels had been cancelled.

Mr. Wright proved that the defendants had given instructions that the words "Pharmaceutical Chemist" should be scratched off bottles and boxes, and that had been done, the words being covered with new labels. What had happened had been due to oversight and haste.

After some further evidence, his Worship fined the defendants 5*l.* each and 3*l.* 3*s.* costs for compounding on the 7th and 11th July, and the summonses for compounding medicines on the 14th, 23rd, and 26th July he adjourned for a fortnight, to read the decision of the Queen's Bench Division upon the point, as ruled some months ago in the case of the Pharmaceutical Society *v.* Fee Brothers.

BANKRUPTCY REPORTS.

Re A. G. E. MARTIN (trading as G. E. Martin & Co.), 14 Fenchurch Street, E.C., Importer of Essential Oils.

THE creditors under this failure met on Friday, August 19, at the London Bankruptcy Court, before Mr. E. Leadam Hough, Official Receiver. The debtor has filed accounts showing gross liabilities 2,074*l.* (unsecured 1,570*l.*) and assets 3*l.* only.

The Chairman said the failure was attributed by the debtor to trading losses, bad debts, and law costs. No dividend could possibly be declared, and in the absence of any offer, the estate would be wound up by the Official Receiver, and the debtor would have to attend the Court on September 27, for his public examination.

The following are the principal creditors:—

Unsecured.

	£	*s.*	*d.*
Bertie, F. H., London	15	0	0
Botolph & Nicholson's Wharf, London	10	0	0
Caudery & Co., London	18	0	0
Corso, P., Agira, Sicily	23	0	0
Deutsche Gelatine Fabrik, London	19	13	0
Fisher, B., London	50	0	0
Fisher, W. F., London	15	0	0
Greco fu Vito, Sicily	22	0	0
Lewig, M., Manchester	18	0	0
Meyer, Spaull & Co., London	15	0	0
Osment, —, London	10	0	0
Prosser, —, London	42	0	0
Salvadore, Alessan & Co., Messina	18	0	0
Steele, —, London	10	0	0
Stubbs, Wilson, & Pollard, London	31	19	10
Townend & Co., London	12	10	0
Treatt, R. C., London	40	0	0
Trombetta, F., Messina	400	0	0
Winter, A. F., Norwood	127	0	0
Zur Medden, —, Norwood	400	0	0

Partly secured.

	£	*s.*	*d.*
Benporath, G. H., London	30	0	0
Meyer, Spaull & Co., London	29	0	0
Parsons, Lee & Holmes, London	480	0	0

It appears from the observations of the Official Receiver, issued on Saturday last, that the debtor states that since June, 1891, he has carried on business as importer of essential oils, &c., having previously been in partnership with two other persons, to whom he is stated to owe 400*l.* and 450*l.* respectively, these amounts representing his share of the losses sustained during the joint tradings. The debtor's household furniture was seized and sold last January, and his office furniture and stock (the latter consisting of sample drugs at a warehouse at 18 Dionis Yard, Aldgate) were recently taken possession of by the respective landlords for arrears of rent.

Re A. E. WORFOLK, Wandsworth, Chemist.

THE adjourned public examination of Alfred Egbert Worfolk, chemist and druggist, lately and now residing at 15 Beauchamp Road, Wandsworth, and formerly residing and carrying on business at 28 Galveston Road, Wandsworth, was held on the 18th inst., at the Wandsworth Bankruptcy Court, before Mr. Registrar Willoughby. Full particulars of this matter have already appeared in our columns. The examination was closed.

Re MR. COWL, Derby, Chemist.

AT the Derby Bankruptcy Court, on Tuesday, Mr. J. T. Wykes applied for the discharge of Mr. Cowl, chemist, Derby.

Mr. Wykes stated that the debtor became bankrupt in 1880, and since that time he had paid 20*s.* in the pound to all his creditors, except two—viz., the London Dental Manufacturing Co. and Messrs. Ritchie & Co., London, who refused to accept the amount of their claims, 160*l.* in all, unless it was remitted through the Official Receiver.

His Honour Judge Kenelm Digby granted the discharge subject to the money being remitted to the creditors by the debtor through the Official Receiver.

Personalities.

MR. JOHN WHERRY WILLSON, son of Mr. Stephen Willson, chemist, of Peterborough, has obtained the degrees of M.R.C.S.Eng. and L.R.C.P.Lond.

MR. W. J. BARNES, chemist and druggist, 54 Biggin Street, Dover, has been appointed by the Lord Chancellor a Justice of the Peace for the borough of Dover. Mr. Barnes is also a member of the Dover Town Council, and president of the Dover habitation of the Primrose League.

Mr. JOHN COOPER, pharmaceutical chemist, has purchased the chemist and druggist business of Messrs. Pinch & Co., Waterloo Street, Weston-Super-Mare.

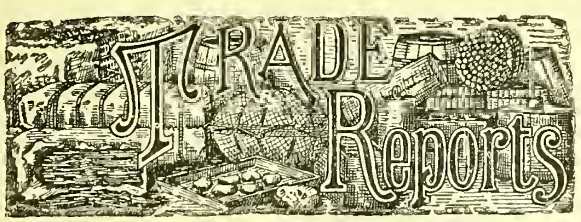
Mr. F. W. GOODMAN, who has been for some years with Messrs. Corbyn, Stacey & Co., 7 Poultry, E.C., has purchased the old-established business of Mr. E. R. Smith, Eccleshall, Staffs.

DEATHS.

EDWARDS.—August 17, at sea, on board the *Lake Winnipeg*, for Montreal, Henry Edwards, for many years in the employ of Evans, Sons & Co., Liverpool. Much regretted by his employers.

KENDRICK.—On August 17, Mr. J. Kendrick, sen., chemist and druggist, Birmingham.

THORNTON.—At Whitby, after a short illness, on August 16, Mr. H. Belcher Thornton, F.C.S., analytical chemist, of Liverpool. Mr. Thornton was the second son of Mr. Francis Thornton, solicitor, of Whitby, and was on a visit with his wife to his father. He was one of the founders of the Liverpool Pharmaceutical Students' Association, and was formerly assistant in Mr. Ward's School of Pharmacy. He was the inventor of the disinfecting tablets which bear his name, and had lately been appointed analyst to the Liverpool and District Dairymen's Association. He had also contributed articles, sketches, and poetry to the local journals.



Notice to Retail Buyers:—It should be remembered that the quotations in thi section are invariably the lowest net cash prices actually paid for large quantities in bulk. In many cases allowances have to be added before ordinary prices can be ascertained. Frequently goods must be picked and sorted to suit the demands of the retail trade, causing much labour and the accumulation of rejections, not all of which are suitable, even for manufacturing purposes.

It should also be recollected that for many articles the range of quality is very wide.

42 CANNON STREET, E.C., *August* 25

The London Markets.

THE drug and chemical markets keep fairly active, considering the time of year and the general depression in business. In several important departments there has even been an unusually active trade, and altogether the tendency of prices has been upwards. There is no alteration in the Bank rate, which remains at 2 per cent. Bar silver is worth 38$\frac{1}{16}$*d.* per oz., and the Bombay and Calcutta exchanges stand at 1*s.* 2$\frac{17}{32}$*d.*

The following notes sum up the principal alterations in price:—

London. The principal feature of the week has been the run upon opium, which closes much dearer. There has also been a strong advance in ergot of rye, and raw camphor closes higher. Cantharides are reported a little dearer from Russia. Cinchona is firm and tending higher. Ipecacuanha has advanced about 15 per cent. Otto of rose, menthol, and Japanese oil of peppermint are dearer. Sassafras oil is also reported higher from New York. Genuine Soudan gum arabics are again offering cheaply, and Mogadore gums are also lower. Malta cumin and canary seed have had a fresh advance. Belgian chamomiles have declined in price, for cocculus indicus lower rates would also be accepted, and Socotrine aloes are again cheaper. In pure chemicals we have to report a slightly firmer market for quinine. Citric acid, morphia, and codeia have been advanced. Carbolic acid is again higher, permanganate of potash unchanged, and cream of tartar a little easier. Quicksilver has had a heavy drop; ginger, cloves, and pepper are also easier. There has been a rise in shellac; gambier, bleaching-powder, and olive oil are also dearer. Sticklac is obtainable at lower rates. Good and fine kowrie gum realised better prices to-day; animi was firmly held, and higher for bean and pea kinds. Copal flat, and olibanum lower.

Liverpool. Our Liverpool correspondent writes that Chilian bees'-wax has been in fair request during the week, while several inquiries have been going about for ordinary Chilian honey. Guinea grains have also been in demand. Quillaia is a little firmer, but castor-oil remains dull and neglected. The rise in canary-seed has received a check, and there have been further heavy arrivals of old-fashioned Soudan gum-arabic.

New York. Our New York correspondent, under date of August 17, reports a general improvement in the jobbing trade since the cessation of the extremely hot weather. The improvement is one rather of tone than volume, however, as the orders are for the most part small. Quinine had sold down as low as \$16 in large bulk about August 12, but improved a little later, and there are now buyers, but no sellers, at \$17. The demand for opium has also improved somewhat, and some orders for case lots are being accepted at \$1.57$\frac{1}{2}$ to \$1.60. for good jobbing quality. Cascara sagrada is neglected but steady at 5c. to 6c. Balsam copaiba shows an upward tendency both in export kinds and in Central American. Angostura and Pará in original packages are worth 35c and 37c., while Central American brings 32$\frac{1}{2}$c. The supply on the spot is limited, and the general indications are favourable for a decided advance, though with all Spanish-American goods appearances are not always to be trusted. Guarana is on the down grade, and no interest is felt in it at \$1.20 to \$1 25. Menthol keeps firm at \$3 to \$3.10 for Japanese. Good Angostura tonquin beans continue firm and fairly active at \$2 25 to \$2.50 as to quality, age, and holder; Pará's bring 40c. to 50c. Mexican vanillas are worth from \$4 to \$7, and present no feature of special interest. Quicksilver is lower, reflecting, as usual, the conditions of the London market. Nitrate of silver has declined to 54$\frac{1}{2}$c. for 1,000-oz. lots, in sympathy with the fall in metallic silver. Nitrate of soda continues to improve in tone under a good demand and strong advices from the source of production on the West Coast of South America. For spot goods \$1 87$\frac{1}{2}$ to \$1.90 is wanted, and for forward shipment \$1 85 to \$1 90 Domestic oil of pennyroyal has been advanced to \$2.25 for favourite brands, while \$2 will buy in some quarters. Peppermint is dull, and HGH brand has been offered at \$2.75, without takers, though \$2.70 is bid. It is reported that local stocks have been lightened by shipment to London. Stocks of Mexican sarsaparilla have been much reduced, and less than a dozen bales are said to constitute the visible supply, all in the hands of one wholesaler, who wants 17c. for single bales. Jalap is jobbing at 33c. to 35c., with only moderate stocks in hand. Mandrake-root is totally neglected. Honduras sarsaparilla is fairly active, at 30c. to 40c. as to brand. Senega is quiet at 35c. to 40c. Texas snake-root is dull at 21c. to 23c. Ipecac has declined to \$1 50 to \$1.55. Morphia has been reduced all round, hydrochlorate in bulk being now quoted at \$1.45 for American and \$1.35 for English. Benzoic acid has advanced to 50c. in bulk, while bromine keeps steady at 15c. per lb. for quantities. The ergot market is well maintained, at 48c. to 50c. for German and 60c. for Spanish. The *Oil, Paint, and Drug Reporter* of August 15 has the following with respect to the sudden rebound in the position of quinine in the States from 16c per oz. to 17$\frac{1}{2}$c. per oz. "The 16c. sales were the action of tired speculators, and when once the market reached that figure the trade generally came to a full realisation of the situation, and as a result a natural reaction set in. Little is now obtainable under 17$\frac{1}{2}$c., some even asking a half cent. higher for their holdings. The action of the American manufacturers in reducing the price of domestic quinine has to a certain extent damped the ardour of the holders of the German product, but as the foreign and domestic makes always run in independent courses, this decline in the domestic is not likely to have any material effect upon the foreign. The trade generally feels assured by the turn in affairs, and it is generally expected that the market from now on will rest on a firmer footing."

What is our Stock of Quinine?

This is a question which has often exercised the minds of speculators. Estimates have been put forth from time to time with some show of authority, but they have generally found little credence, because there is a wide discrepancy between them, and the secret of the stock is pretty closely kept by the Dock Company, in whose Crutched Friars warehouse the bulk of the supply is held under lock and key. The following figures may, perhaps, serve to throw some light upon the question. When the drugs stored at the old Fenchurch Street warehouse were removed to Crutched Friars in January, 1890, the total quantity of quinine transported was 2,829 cases, weighing 125 tons 16 cwt. 1 qr. Since then the supply has been slowly diminishing, until at the present time our supply may safely be assumed to amount to about 2,550 cases, weighing 250,000 lbs. gross, or, say, 220,000 lbs. net. Our present stock of quinine in the Dock warehouses is therefore a little over 3,500,000 oz.

ACID (CARBOLIC).—After having been decidedly quieter during the last fortnight, this article again shows much more firmness this week, and it is very difficult to obtain liquid acid for immediate delivery. Liquid acid, 90-per-cent., is held for 1*s.* 9*d.* to 1*s.* 10*d.*; crystals, 34°–35°, for 5$\frac{1}{4}$*d.* to 5$\frac{1}{2}$*d.*; and 39°–40° ditto for 6*d.* to 6$\frac{1}{4}$*d.* per lb.

Acid (Citric).—The B.P. acid has been advanced to 1*s.* 5½*d.* by the makers; other brands are held for 1*s.* 5*d.* per lb. This shows a higher market, but there is not much business.

Acid (Tartaric) shows no improvement. English (B.P.) is quoted at 12¼*d.* per lb, not guaranteed ditto at 11⅝*d.* to 11¾*d.*, foreign crystals and powder at 11¼*d.* per lb.

Aloes.—A parcel of fair brown *Socotrine* aloes from Bombay, of very good flavour but rather soft, sold cheaply last Thursday at 70*s.* to 75*s.* per cwt. This shows a fall in value.

Antimony.—Crude Japanese steady, but quiet, at 26*l.* per ton on the spot.

Antipyrin.—The price has been raised 1*d.* per oz.

Arsenic.—Fairly steady, at 12*l.* 5*s.* for best white powder.

Bleaching-powder has advanced this week, and is becoming very scarce on the spot. In London 8*l.* 10*s.* has been paid; and between that figure and 8*l.* 15*s.* may be called to-day's quotation. On rail Lancashire 7*l.* 10*s.* is quoted; and on the Tyne 7*l.* 12*s.* 6*d.* net.

Borax.—Without alteration. Crystals may be had at 29*s.* to 30*s.* per cwt., while for powder an extra shilling must be paid.

Calumba is firmly held. Of 93 bags offered last Thursday 20 sold at 20*s.* per cwt. for dull brown dusty and wormy, offered "without reserve."

Camphor (Crude).—Fair China has sold privately at 130*s.*, and Japan at 135*s.* per cwt. on the spot. There has also been some business in China at 118*s.* c.i.f., and in Japan at 127*s.* c.i.f. These are higher rates, and holders are sanguine of still dearer prices.

Camphor (Refined).—Firm, but unchanged, at 1*s.* 6½*d.* per lb. net for foreign brands.

Canary-seed.—The position remains very strong. At auction 354 bags *Turkish* seed were bought in at 100*s.* As the high prices now obtainable have failed to draw supplies, it is supposed that no substantial stocks are kept back anywhere. Old *English* seed is quoted at 70*s.* to 75*s.*, *Morocco* at 82*s.* to 85*s.*, and *Spanish* at 87*s.* to 92*s.* per cwt. For good Turkish 80*s.* has been paid.

Cantharides.—Russian flies of last year's gathering, but described as "of very excellent quality," are being offered at 3*s.* per lb., c.i.f. terms.

Caraway.—Speculators have taken a great part of the Dutch seed out of the market, and high prices are asked for anything worth having.

Cardamoms.—Between the January and the August of this year, 218,553 lbs. of cardamoms were exported from Ceylon, against 185,444 lbs., 196,059 lbs., and 165,772 lbs., respectively, in the corresponding periods of 1891, 1890, and 1889.

Chamomiles.—The new Belgian crop is now arriving freely. Prices are rather lower this week—good pale flowers, first pickings, offering at 72*s.* 6*d.* per cwt., and rather smaller and yellower at 62*s.* 6*d.* to 67*s.* 6*d.* per cwt.

Cinchona.—Tuesday's cinchona auctions were again light, the total quantity of bark offered consisting only of:—

	Packages		Packages	
Ceylon cinchona	911	of which	849	were sold
East Indian cinchona ..	111	"	84	"
Java cinchona	30	"	30	"
W. African cinchona ..	40	"	40	"
S. Amer. Calisaya cinchona	435	"	284	"
Cuprea bark	323	"	—	"
	1,850		1,287	

The assortment was very poor, barks of high analysis being almost entirely wanting. There was also a noteworthy paucity of East Indian barks. Holders were very firm, while on the other hand there was a good deal of competition among the manufacturers, with the result that barks of fair quality realised a slight advance, while the poorer kinds remained stationary. The average unit remains $1\frac{3}{16}$*d.* per lb.

The following are the approximate quantities purchased by the principal buyers:—

	Lbs.
Agents for the Brunswick factory	79,637
" Mannheim and Amsterdam works ..	40,239
Messrs. Howards & Sons	36,684
Agents for the Frankfort and Stuttgart works ..	35,805
" Auerbach factory	30,810
" French (Paris) factory	14,233
" American and Italian works	11,112
Sundry druggists	21,391
Total quantity sold	269,911
Bought in or withdrawn	74,440
Total quantity offered	344,351

It should be well understood that the quantity of bark purchased affords very little clue to the quantity of sulphate of quinine represented by the purchases of each firm. The following prices were paid for sound bark:—

Ceylon Cinchona.—*Original.*—Red varieties: Ordinary woody to fine bright quilly stem and branch chips, 1½*d.* to 3¼*d.*; dust, 2½*d.*; fair bright shavings, 2¼*d.*; ordinary dusty to good bright root, 1¾*d.* to 2¾*d.*; broken to good bald quil, 3*d.* to 4¼*d.* per lb. Grey varieties: Ordinary dull to good bright quilly stem and branch chips, 2¼*d.* to 3¾*d.*; fair to fine bright root, 3½*d.* to 5¼*d.*; fine bold shavings, 6¾*d.*; thin twigs, 1½*d.* to 2*d.* per lb. Yellow varieties: Chips, 3½*d.*; root, 5*d.* per lb. Hybrid, dull to good quilly stem and branch chips, 2½*d.* to 4*d.* per lb. *Renewed.*—Red varieties: Ordinary to fair bright quilly stem and branch chips, 1½*d.* to 4*d.*; fair spokeshavings, 2¼*d.* to 2½*d.* per lb. Grey varieties: Ordinary to fine quilly stem and branch chips, 1⅓*d.* to 5¾*d.*; fair shavings, 2¼*d.* to 2½*d.*; root, 4*d.* per lb. Fair yellow chips, 4¼*d.* per lb.

East Indian Cinchona.—*Original* ordinary to fair red stem and branch chips, 1½*d.* to 2½*d.*; dull root, 2*d.*; Hybrid shavings, 4½*d.* per lb. *Renewed* shavings, 3½*d.* per lb.

Javan Cinchona.—Yellow dusty and small branch chips, 3*d.* to 3¼*d.*; good ditto stem chips, 4½*d.* to 5*d.*; good root, 6*d.* per lb.

West African Cinchona.—Red druggists' quills, fair but rather broken and irregular, 3*d.* per lb.

South American Cinchona.—Cultivated Bolivian *Calisaya*, irregular to good stout quill and chips, 4¾*d.* to 7½*d.* per lb. Damaged ditto, 3*d.* to 6¾*d.* per lb. Of *Cuprea* bark about 18 tons of 1883 import were bought in, bids of 1½*d.* to 1¾*d.* per lb. being refused.

"We have no advice" (say a firm of bark-brokers), "of any Guayaquil Crown bark coming forward, and there is no improvement in the low prices prevailing; but a consignment from Ecuador of 49 serons fine genuine *Huanoco*, *Loxa*, and *Silvery Crown* is on the way for this market. Fine heavy flat red South American bark is wanted."

The following are the exports of cinchona bark from Java during the years ending June 30:—

—	Private Plantations	Government Plantations	Total
	Amsterdam lbs.	Amsterdam lbs.	Amsterdam lbs.
July 1, 1891, to June 30, 1892 ..	7,181,075	605,792	7,786,867
" 1890 " " 1891 ..	6,323,561	553,255	6,876,816
" 1889 " " 1890 ..	4,579,787	541,481	5,101,268
" 1888 " " 1889 ..	3,599 525	815,606	4,415,031
" 1887 " " 1888 ..	3,124,924	617,101	3,742,025

The exports of cinchona from Ceylon during the period from January 1 to August 1, have been:—In 1892, 3,617,380 lbs.; 1891, 3,249,653 lbs.; 1890, 4,815,062 lbs.; 1889, 5,173,737 lbs.

Cloves are again lower. At auction 600 bales *Zanzibar* cloves were offered, of which a part sold at from 2½*d.* to 2⅞*d.* per lb. for fair to good quality. A parcel of 57 bags *Java*, fair quality, brought from 4*d.* to 4½*d.* per lb.

Cocculus Indicus.—Very difficult to move. Holders bought in 41 bags at 9*s.* per cwt. at the last auctions, but lower prices would probably be accepted.

Copper (Sulphate).—Very flat, though quotations are nominally maintained. 14*l.* 10*s.* per ton is the spot quotation in London, 14*l.* 15*s.* in Liverpool.

Cream of Tartar again lower. Sales of best white French crystals have been made at 83*s.* 6*d.* to 84*s.*, and of powder at 85*s.* per cwt.

Cubebs.—The following figures relate to the exports from Java during the last four years (July 1 to June 30):—1888–89, 883 piculs; 1889–90, 1,353 piculs; 1890-91, 1,378 piculs; 1891–92, 2,207 piculs.

Cumin.—*Malta* cumin is again dearer, 45*s.* having been paid this week for old seed. The new crop is of very inferior and dark quality. *Mogadore* seed is somewhat neglected, with sales at from 19*s.* to 21*s.* per cwt., according to quality.

Ergot of Rye.—There has been a sudden run upon this drug during the last two days. Yesterday fair to good Spanish sold at 2*s.* to 2*s.* 3*d.* per lb., and since then 2*s.* 3*d.* has been refused for good new crop, holders now asking 2*s.* 6*d.* per lb. There is no Russian of new crop offering at all, and it is said that we need not expect any supplies from that country this year, nor from Hungary or Germany. Fine old Belgian ergot sold at 2*s.* 4*d.* per lb. to-day.

Fenugreek-seed is firmly held at 8*s.* 9*d.* to 9*s.* per lb.

Galls.—We hear of a small business in good blue *Turkey* galls at 60*s.* per cwt.; for good *China*, from 50*s.* to 52*s.* 6*d.* per cwt. is asked. To arrive the quotations are 46*s.*, c.i.f., for usual size, and 53*s.*, c.i.f., for plum shape.

Ginger.—*Jamaica* ginger is dull of sale and tending easier. Of 135 barrels offered at auction 20 sold at from 54*s.* to 59*s.* for low to good bright medium. *Cochin* remains quite neglected.

Gum Arabic.—The Soudan gum which is now arriving rather freely in Liverpool consists principally of fine white sorts, quite genuine, but which have apparently been stored up for some time. Holders would probably sell at 75*s.* to 80*s.* per cwt., though they are nominally asking a little more than that. A parcel of *Ghezirah* gum lately shown here is believed to have been sold at 40*s.* per cwt. The price of *Mogadore* gum has been much reduced lately; fine white may now be bought at 75*s.* to 80*s.* per cwt., and ordinary kinds at as low a price as 60*s.* per cwt. There is no excitement whatever in the market, but a fair amount of business is being done at steady rates in some East Indian gums—notably *Ghatti*.

Gum Myrrh.—For fair Aden sorts, 85*s.* per cwt. would still be the nearest price. It is arriving more freely. There have been 61 packages from Aden by the *Java* this week.

Gum Tragacanth.—The limits have been raised by many of the holders, but the trade are unwilling to pay the advance, hence business is almost at a standstill. Good pale druggists' gum has been sold, it is stated, at 10*l.* 10*s.*, and now 10*l.* 10*s.* to 11*l.* is asked.

Iodine shows no alteration, 9*d.* per oz. for crude being still the Convention price.

Ipecacuanha.—There has been quite a sudden demand for this root, mainly, we believe, from the States. It is said that for ordinary lean *Rio* ipecacuanha 6*s.* per lb. has been given, an advance of 7*d.* since last Thursday. Pretty nearly all the *Cartagena* root has been bought up at prices running to 4*s.* 6*d.* per lb., and re-sales have since been made at a considerably higher figure.

Isinglass.—The periodical auctions, in spite of the heavy quantity offered, showed a rather steady tone. *Brazil* lump sold with good demand at an advance of about 2*d.*; ordinary to fine, 2*s.* to 2*s.* 11*d.*; common brown to good pale tongue, 1*s.* 10*d.* to 3*s.* 9*d.* per lb. *Penang* is quiet and generally lower; low to good leaf at 1*s.* 7*d.* to 4*s.*; common dark to good tongue, 1*s.* 3*d.* to 3*s.* 1*d.* *Saigon* leaf is firm, at 3*s.* 5*d.* for ordinary to 5*s.* 11*d.* for good. *Bombay* and *Kurrachee* kinds are very irregular; ordinary to good purse, 6*d.* to 1*s.* 3*d.*; low to fine leaf, 8*d.* to 2*s.* 8*d.*; dark gelatinous to good pipe, 11*d.* to 2*s.*; ordinary grey to good bladder, 10½*d.* to 2*s.* 9*d.* per lb.

Lithia.—Although prices were officially raised last week, we understand that it is still possible to buy at from 6*d.* to 1*s.* per lb. below the new official quotation.

Lycopodium.—The first parcels of the new crop are being offered now at 165*s.* per cwt., c.i.f. terms.

(Oil Castor)—Reports from Calcutta, dated August 2, state that business in castor oil was dull. The weather had improved, and the production, consequently, increased somewhat, but the arrivals of castor seed for crushing were much smaller, and the raw material, therefore, cost more money. Holders of oil, for the sake of obtaining business, were willing to make small concessions, but not large enough to suit would-be purchasers. First pale Calcutta is quoted here at 3*d.*, fair to good pale seconds at 2⅜*d.* to 2⅝*d.* per lb.

Oils (Essential).—We hear that the recent sale of *star-anise* at the auctions at 5*s.* 11*d.* per lb. (which was "subject to approval") has not been confirmed by the owner, who refused to take less than 6*s.* per lb., and that sales have actually been made at that price since then. As regards the delivery market, offers of 5*s.* 5*d.* per lb. c.i.f. terms for *Star-anise* oil shipment were wired out to China this week, but the answer came that nothing less than 5*s.* 7½*d.* per lb. c.i.f. terms would be accepted. American oil of *peppermint* (H.G.H.) is held here for 13*s.* per lb., but cables from America quote lower rates—viz., 12*s.* 3*d.* per lb. c.i.f. It is expected that the price of this article will be affected by the cholera epidemic. Japanese oil is firm at 6*s.* per lb.; *Menthol* is also dearer at 10*s.* (perhaps still 9*s.* 9*d.* per lb., at which sales are reported) for native brands and 12*s.* 6*d.* per lb. for Cocking's. *Sassafras* oil is cabled higher from New York, at 1*s.* 10*d.* per lb. c.i.f. terms.

Oil (Olive).—There has been an advance in Italian eating-oils at the rate of about 3*l.* to 4*l.* per tun. The present quotations are from 4*s.* to 5*s.* 6*d.* per gallon for good to fine (sublime) Bari and Lucca eating-oils. The prospects for the new crop, which is due for shipment from Italy in December, are described as very poor, and the stocks of eating-oils in London are thought to be small. Nevertheless, trade is exceedingly slack. As regards common oils, we hear that the markets in Italy and Sicily have advanced considerably. From the Ionian Islands no oil is being offered, and it is now said that in that quarter, also, the crop (hitherto looked upon as promising well) has suffered damage from excessive heat and damp. In the Levant, Tunis, Morocco, and Spain prices are also tending higher, and everywhere it is said that it does not pay to ship to England at the prices now ruling in London and Liverpool. Our home quotations are: London—Spanish and Sicilian oils, 33*l.* to 34*l.*; Levantine, 32*l.* Liverpool—Spanish, 35*l.* to 36*l.*; Candia, 34*l.* to 35*l.*; Messina, 34*l.* to 34*l.* 10*s.*; Levant, 32*l.* 10*s.* to 33*l.*, with some business at those figures.

Opium.—The London market has been exceedingly active lately. Last week the total sales amounted, it is said, to about 180 cases, at an advance of 1*s.* per lb. upon *Druggists'* kinds. This week the amount of business transacted has not been quite so heavy, but prices are fully maintained at the recent advance. For fine druggists' opium up to 7*s.* 6*d.* per lb. has been paid, and for seconds from 6*s.* 6*d.* to 7*s.* per lb. The demand for soft *Shipping* qualities has not been so active, but these also have somewhat advanced in price, 8*s.* 6*d.* per lb. being the highest figure yet paid. In *Persian* opium there has been a good deal of business this week at 9*s.* per lb., according to quality, and now 9*s.* 6*d.* per lb. is asked for fine. Of new-crop opium only some lots of Guévé (Constantinople pats) have as yet come to hand here. The quality is described as very "chaffy," but 7*s.* 6*d.* per lb. is nevertheless asked for it by the importers. Our Smyrna correspondent writes, under date of August 13:—"Since our telegram of August 10 purchases have continued and a further advance has taken place. The total sales since my last communication amount to about 90 cases, at the following quotations: New Yerli opium, including loss in weight, 7*s.* 9*d.* to 7*s.* 10*d.* per lb., f.o.b.; new Yerli talequale, including loss in weight, 7*s.* to 7*s.* 2*d.* per lb., f.o.b.; new current talequale, including loss in weight, 6*s.* 8*d.* to 6*s.* 9*d.* per lb., f.o.b.; old Karahissar opium, 6*s.* 10*d.* to 6*s.* 11*d.* per lb., f.o.b.; old manufacturing talequale, 6*s.* 8*d.* to 6*s.* 9*d.* per lb., f.o.b. Should purchases continue our market will be maintained, but in the event of buyers withdrawing for a couple of weeks or so, we may have a slight reaction on above quotations. Meanwhile the market remains very firm. The arrivals to date of the new drug are 1,421 baskets against 1,372 at the same time last year."

OPIUM SALTS.—*Morphia Hydrochlorate* has been advanced 3*d.* per oz. by the makers, who now quote 3*s.* 3*d.* per oz. for powder, and 3*s.* 6*d.* per oz. for crystals. *Codeia* is also dearer—viz., 11*s.* 6*d.* per oz., but it is possible to buy slightly under these figures.

ORANGE-PEEL.—The market appears to have been almost, if not entirely, cleared of good thin cut *Malta* peel. The nominal quotation is now 1*s.* 6*d.* per lb.

OTTO OF ROSE.—The price for the leading brand has just been fixed at the rate of 29*s.* 6*d.* f.o.b. Constantinople, which is equal to about 30*s.* 9*d.* to 31*s* in London. Other brands are quoted at from 26*s.* to 29*s.* per oz. in London.

PEPPER remains very weak, and sales have been made for delivery at lower rates. Fair to good *black* Singapore sold at auction at 3*d.* to $3\frac{1}{8}$*d.* per lb., and fair *white* Singapore at $4\frac{5}{8}$*d.* per lb.

PERMANGANATE OF POTASH.—The price remains 77*s.* 6*d.* per cwt. for small, and 82*s.* 6*d.* for large crystals, with a very firm market.

POTASH SALTS.—The prices of *Saltpetre* remain unaltered, British refined in kegs being quoted at 21*s.* 9*d.*, German at 21*s.* 3*d.* per cwt. For barrels the quotations are respectively 20*s.* 9*d.* and 20*s* 6*d.* per cwt. *Prussiate*: Yellow British steady at $10\frac{1}{4}$*d.* to $10\frac{3}{8}$*d.* per lb. *Bichromate* quiet at $4\frac{1}{2}$*d.* per lb.

QUICKSILVER is flat and lower. The importer's price is still nominally 6*l.* 15*s* per bottle, but second-hand holders offer at as low a price as 6*l.* 7*s.*

QUININE.—A slightly firmer tendency has been displayed this week. On Friday last there were buyers but no sellers at $8\frac{3}{4}$*d.* per oz., and to-day 9*d.* per oz. is the quotation in second-hand. The total quantity sold during the last fortnight is estimated at 15,000 oz. on the spot at $8\frac{3}{4}$*d.* to 9*d.* per oz. for second-hand German bulk, and 5,000 oz for October delivery at 9*d.* per oz. Some of the makers have revised their quotations, the following being the official prices:—*Howards*, in bulk, 1*s.* 1*d.* to 1*s.* 2*d.*; in vials, 1*s.* 2*d.* to 1*s.* 3*d.*; *Whiffen*, in bulk, $12\frac{1}{2}$*d*; in vials, 1*s.* 2*d.*; *Pelletier* in vials, 1*s.* 7*d*; *Milan*, in bulk, 11*d.*; in vials, 1*s* 1*d.*; *Zimmer & Jobst* in bulk, 11*d.*; *Brunswick* ditto, $10\frac{1}{2}$*d.*; *Mannheim* and *Auerbach* ditto, 10*d.* per oz. The imports of quinine and other cinchona salts into the United States during the fiscal year ending June 30 have been: In 1891–92, 2,853,871 oz.; in 1890-91, 3,332,173 oz. Of cinchona bark the imports during the two periods were respectively 3,434,875 lbs. and 2,901,783 lbs.

RHUBARB.—Still arriving freely. There were 52 cases in the *Ningchow*, and 78 in the *Diomed*, which came in on Monday.

SAL AMMONIAC is still offering at 35*s.* per cwt. for best, and at 33*s.* for second-quality crystals.

SENNA.—The first consignment of new-crop *Tinnevelly* senna, consisting of about 150 bales, sold at the end of last Thursday's sales with good competition, at prices ranging from 1*d.* per lb. for common specky yellowish and small to $8\frac{1}{4}$*d.* per lb. for good medium to bold bright green.

SHELLAC.—The market opened with a rather steadier feeling this week. On Monday there were buyers of garnet lac, AC, on the spot, at 75*s.*, cash terms (sales had been made at 74*s.* 6*d.* last week); and 200 cases TN orange for November delivery sold at 84*s.* per cwt. Subsequently 75*s.* was accepted for garnet AC, and 81*s.* 6*d.* to 82*s.* for orange lac, with short prompt. Fine button lac is inquired for, and full prices are offered on the spot; but holders do not care to sell, and at the auctions they held for extreme rates. A total of 838 cases of shellac was offered at the public sales, and of this 606 cases sold at an advance of about 1*s.* per cwt. on common orange kinds, while good orange was firm. The following prices were paid:—*Orange*—Fair bright to pale curly, unworked, 81*s.* to 85*s.*; fair pale to good red flat ditto, 80*s.* to 81*s.*; dark to reddish livery, 78*s.* to 80*s.* per cwt. *Button*—Unworked ordinary seconds, 85*s.*; fair thirds, 78*s.* per cwt. The market closes very firmly. TN orange is not offering below 84*s.* 6*d.* for October, or 85*s.* for November delivery. About 400 cases September have been sold to-day at 83*s.* 6*d.* per cwt. Garnet AC is held at 75*s.* to 76*s.* per cwt.

SILVER (NITRATE).—Pure 90-per-cent. in crystals is now offering very cheaply. The price varies almost from day to day, according to the silver value, but the nearest quotation now is 2*s.* 1*d.* per oz.

SODA SALTS.—*Bichromate* is now worth $3\frac{3}{4}$*d.* per lb. *Bicarbonate* in kegs at the warehouse is held for 7*l.* 5*s.* per ton, and at 6*l* 5*s.* to 6*l.* 15*s*, f.o.b. Liverpool, according to packing. *Crystals* are 67*s.* 6*d*, ex ship, or 70*s* landed terms; the London makers ask 68*s.* 6*d.* at the works. *Nitrate* is held at 8*s.* 6*d.* to 9*s.*, according to quality. *Caustic* is held at 10*l.* 10*s.* for 70-per-cent. on the spot, London, and at 10*l.* 5*s.* in Liverpool; 60-per-cent., at 9*l.* 2*s.* 6*d.* in Liverpool; 70-per-cent., on the Tyne, at 10*l.* 5*s.*; 76 to 77-per-cent., ditto, at 11*l.* 10*s.* per ton.

SOY (CHINA) is selling quietly on the spot at 1*s.* $1\frac{1}{2}$*d.* to 1*s.* 2*d.* per gallon.

STAR ANISE.—The nominal price is 110*s.* per cwt. for genuine China star anise, but there is practically nothing offering. In China there is said to be no stock either, and the season is over. Old crop Russian anise is still selling at 19*s.* per cwt.

TAMARINDS.—There have been sales of Calcutta tamarinds privately at 8*s.* 6*d.* per cwt.

TURMERIC.—The market is steady, but there is very little business passing. Bright *China* finger has been sold at 17*s.* 6*d.* per cwt.: fair *Bengal*, 20*s.* per cwt. At auction 376 bags were all bought in; dull lean and damaged *China*, bulb and finger mixed, at 17*s.* to 18*s.*; dull *Cochin* finger at 24*s.* per cwt.

WAX (CARNAUBA).—Very difficult to sell; the nominal value is from 50*s.* to 60*s.* for fair to fine pale yellow, and 35*s.* to 45*s.* for more or less grey mixed.

WAX (JAPAN).—Very flat, and obtainable at 37*s.* per cwt. for good pale squares.

THE LIVERPOOL MARKET.

CANARY-SEED.—The rapid rise has experienced a slight check; but the article is in a firm position, and sales of good bright seed have been effected at 78*s.* 9*d.*; 80*s.* is asked by many.

GUINEA GRAINS.—Several parcels have been sold at 22*s* 6*d.* for good quality, and the last sale was a small lot at 22*s.* 3*d.*

GUM (ACACIA).—The old-fashioned sorts continue to arrive freely, but are now held much more firmly.

HONEY.—There is considerable inquiry, especially for the lower grades of Chilian. The arrivals continue steady, and stocks are large.

THE AMSTERDAM CINCHONA SALES.

(*Telegram from our Correspondent.*)

AMSTERDAM, Thursday night.

OF about 5,100 packages Java cinchona offered here to-day, 3,274 packages sold (the rest being held for too high limits) at $6\frac{1}{8}$c. (= $1\frac{1}{8}$*d.* per lb.), a price which very nearly corresponds with that obtained at the London auctions of this week. The following prices were paid: Manufacturing barks, in quills, broken quills, and chips, from 8c. to 174c. (= $1\frac{1}{4}$*d.* to 2*s.* $1\frac{1}{2}$*d.* per lb.); ditto root, from 18c. to 35c. (= $3\frac{1}{4}$*d.* to $6\frac{1}{2}$*d.* per lb.). Druggists' barks, in quills, broken quills, and chips, from 5c. to 35c. (= 1*d.* to $6\frac{1}{2}$*d.* per lb.); and ditto root, 13c. to 19c. (= $1\frac{1}{4}$*d.* to $3\frac{1}{2}$*d.* per lb.). The principal buyers were the Brunswick works, the Auerbach works, and the Amsterdam factory.

THE SMYRNA OPIUM MARKET.

(*Telegram from our Correspondent.*)

SMYRNA, Wednesday night.

OUR opium market remains very firm, but quiet; the prices are stationary at our last quotations. Fifteen cases have been sold this week at the previous parity.

Correspondence

Memoranda for Correspondents.

Always send your proper name and address: we do not publish them unless you wish: if you do not, please use a distinctive nom-de-plume.

Write on one side of the paper only; and devote a separate piece of paper to each query if you ask more than one, or if you are writing about other matters at the same time.

If you send us newspapers, please mark what you wish us to read.

Ask us anything of pharmaceutical interest: we shall do our best to reply.

Before writing for formulæ consult the last volume, if you have it.

Letters, queries. &c., will be attended to in the order received.

Assay of Laudanum.

SIR,—Will you allow me a small space for a comment on the letter of Messrs. Farr & Wright in THE CHEMIST AND DRUGGIST *in re* "Tinct. Opii and the Nottingham Prosecutions"? I do not presume to question the correctness of their analysis as I think the B.P. method of making tr. opii would fail to exhaust the opium, but by the process I have used for many years I believe the opium is practically exhausted, not only of the morphia but of all soluble matter.

I take the opium (say 7½ lb), and, having estimated the morphia, heat it in a steam-pan with 4 gallons of water till all soluble matter is dissolved; put it into a can, and add 4¼ gallons of S.V.R. and shake well. In a few days the liquid is poured off, and the bottoms put in a filter-bag and the liquid poured on them and filtered through them, the bottoms pressed, and the quantity made up with proof-spirit to the number of gallons corresponding to the percentage of morphia—10 per cent. to 10 gallons.; 11 per cent. to 11 gallons, &c.

I have lately examined four samples from our customers (two at Nottingham) with the following result:—

A.—·726 per cent. morphia.
B.—·724 „ „ „
C.—·729 „ „ „
D.—·790 „ „ „

Another sample, a customer's own make, gave me ·896 per cent. This must have been made of an opium containing not less than 12 per cent. morphia.

I think these samples prove that the opium can be and by this process is practically exhausted.

The method of analysis was to take 60 c.c. of tincture, evaporate to an extract, add 2 gr. calcium hydrate and 60 c.c. aqua, filter out 52 c.c., and test as in the B.P. I believe the B.P. process gives results rather in excess; but as you are required to use it in estimating opium, it was used in estimating the tincture.

The analyst at Nottingham found no morphia in one specimen, some of which nearly poisoned a woman!

Market Place, Hull, Yours truly,
August 22. JOHN S. LINFORD.

SIR,—The letter from Messrs. Farr and Wright on the percentage of morphia actually found by them in tinctura opii., B.P., deserves the most careful consideration.

It is a serious matter indeed if a chemist who loyally follows the directions of the Pharmacopæia, and spares no pains to stock drugs of standard quality, is yet liable to be branded as a criminal because the process he is bidden to follow fails to secure the transfer to the galenical preparation of all the active principles of the crude material. Can no better method be devised of ensuring that the marc shall be exhausted of its active principles? Probably the great majority of pharmacists have never suspected the existence of this difficulty.

The physical condition of the marc, as it is left upon the filter, suggests none. Since good opium is said—in Royle and Headland's "Materia Medica"—to yield about two-thirds of its weight to water and as much as four-fifths to rectified spirit, it would seem more difficult to avoid than to attain its exhaustion by a proof-spirit menstruum. Would it be an improvement to macerate the opium in three-fourths of the spirit, then to transfer to a perculator, and to complete the process by pouring the remaining fourth, or *quantum sufficiat*, over the drained marc? Or is there any evidence in favour of a plan which I have sometimes known to be followed, which is to take fresh opium one-sixth more than the specified quantity, so as to allow for moisture—*i.e.*, for a pint of the tincture, 1¾ oz; this is sliced and macerated in 7½ oz. of boiling distilled water for twelve hours, stirring frequently until it is thoroughly pulped, then 12½ oz. of rectified spirit are added, and the maceration finished in the way prescribed by the Pharmacopœia.

These prosecutions will probably set most chemists thinking how they may test their laudanum for its percentage of morphia. My own experience is confined to one attempt to assay the liquid extract of poppy-capsules—which is sold for the extemporaneous preparation of the syrup—and that was a complete failure.

Passing on to consider the letter of "Anglo-Indian" on the use in India of the native-grown drug, it puzzles me to understand how Malwa opium, yielding only 2 per cent. of morphia (Royle and Headland), can be substituted for Smyrna opium, containing 10 per cent., without disastrous failures in its clinical use and endless trouble to both prescriber and dispenser. On the authority above quoted, Malwa opium contains 30 per cent. of moisture, while "Anglo-Indian" states that it loses 23 per cent. by evaporation; but this is a minor point.

That the soil and climate of India present no insuperable difficulty to the production of opium satisfactory as to its morphia-content is shown by the assay of the Saharunpore Garden opium, first cultivated by Dr. Royle, which, in the hands of the late Professor Daniell, reached 8 per cent. The Patna Garden opium, cultivated, prepared, and selected exclusively for the dispensaries, yielded to Dr. Christison as much as 10½ per cent. Why has not the production of this quality been extended so as to supply the pharmacists in India who now, "Anglo-Indian" tells us, universally use Malwa?

It is hardly a complete answer to Mr. Dott's assertion—that Indian opium was unsuitable for making morphine—to bring forward instances of morphia and other alkaloids obtained from "the waste of the opium factories" having been actually made and sold. The expression I have quoted is a curious one. Why should the most valuable constituent of the drug and the measure of its value be found in any quantity in the "waste"; and if it is, what is likely to be the therapeutic value of the factory-made drug which nevertheless, according to "Anglo-Indian," yields high-class solid and liquid extracts?

From an economical point of view "Anglo-Indian's" own figures show the entire unsuitability of the drug for morphia-making. A manufacturer who would pay for it 13*s.* per lb. when raw material containing three times as much can be bought for 7*s.*, must be sadly wanting in "gumption." The whole question abounds in interest.

Yours obediently,
Dover, August 23. J. F. BROWN.

SIR,—Although the difficulty experienced in completely exhausting opium of its alkaloids with proof spirit is not a new one, nevertheless, the letter of your correspondents, Messrs. Farr and Wright, in your last issue is interesting, inasmuch as it shows what kind of laudanum a pharmacist is likely to produce if he makes a tincture from opium of the low alkaloidal standard of the British Pharmacopœia, and does not subsequently standardise his tincture to the 0 75 per cent. of morphia, which it is stated in the Pharmacopœia the tincture should contain.

As I understand the matter, there are errors all round, of which cognisance must be taken in order to determine what are the practical difficulties that prevent the easy production of a tincture by the pharmacist, who may have the opportunity of operating on small quantities only, which should contain the official percentage of morphine. Some of the errors are these:—

(1) The British Pharmacopœia standard of the alkaloidal value of opium is much too low; this has been freely ac-

knowledged, and will, no doubt, be amended in future editions.

(2) It has been presumed that the assay process (given under the head of opium) for morphine will give a like morphia value when proof spirit is the solvent. In other words, the Pharmacopœia statement is based upon calculation rather than upon actual observation of laboratory production of tincture followed by estimation of the morphine.

Practically, I have found when working on a large scale that it is more convenient to prepare a tincture of a greater strength than the Pharmacopœia orders, and from an opium of higher alkaloidal value than the Pharmacopœia directs (say, from 12 to 14 per cent. of morphia in the powdered opium), and then, after assay, to reduce such tincture by dilution with proof spirit to such a strength that 1 fluid oz. shall contain 3·3 grains of morphine or 75 per cent. By this slight deviation I obtain a result aimed at by the editors of the British Pharmacopœia in producing a standardised tincture that shall not be of less alkaloidal value than they direct.

August 23. JOHN C. UMNEY.

Water-analysis.

SIR,—I fancy the letter from Mr. Wanklyn in your last issue will give rise to a deal of misapprehension, and trust you will allow me space for a few remarks. In the first place, it is a great pity that the old quarrel between the two processes should be revived. No one who looks at the matter from an unbiassed point of view can fail to see that both processes have their merits. As a water-analyst of some experience, I should never dream of omitting Wanklyn's albuminoid-ammonia process, but I consider that the Frankland-Armstrong process should also be applied if any way possible. It must be remembered that Wanklyn's process does not give you any true estimation of the amount of organic matter present, for a definite substance will yield up one proportion of its total nitrogen to the action of the alkaline permanganate and another substance a different amount. This at once, I think, invites a more definite method of analysis—such as is Frankland's—where we have in black and white the actual amount of carbon and nitrogen present. Of course, this latter is a tedious process; but from an experience of nearly 600 samples, analysed in both ways to a great extent by myself, one is driven to the conclusion that (unless the history of the water tells a special tale) the two methods together condemn or together approve a given sample. It is very misleading to assume that most chemists do not prefer to use the combustion process, for it will be found that, amongst other doctors, Crookes and Odling (formerly, too, the late Dr. Tidy) report for the seven London companies on this method of analysis to the exclusion of the Wanklyn process. Professor Thorpe, Professor Smith, Dr. Angel, and many other chemists of repute use the combustion process, and in the laboratory in which I have the privilege of working often as many as forty samples a week are thus analysed.

I am, &c.,
10 Ascham Street, N. ERNEST J. PARRY.

Suppository-pan.

SIR,—I have had a similar pan in use at least two years. There is one important mistake in your diagram. The handle of the top pan is put so that the spout is to the left hand. This necessitates holding with right, stirring with left whilst pouring out, which is very awkward except to "Benjaminites." I have also a much larger pan with three inner pans of different depths for ointments, &c., which I find most useful. I think Mr. W. Toogood sold similar suppository-pans, but not with round bottoms, and one or two other advantages. Yours truly,

YORKSHIRE CHEMIST. (98/19.)

A Cream-of-Tartar Transaction.

SIR,—We ordered from a northern firm styling themselves "Drug Brokers, &c.," a cask of cream of tartar. On its arrival, the weight invoiced corresponding with that stated on the railway delivery-note—namely, 11 cwt. 1 qr. 14 lbs.—almost satisfied us, but, on second consideration, we did weigh it and found it 2 cwt. 0 qr. 26 lbs. short, and on testing the cream of tartar found it to contain about 50 per cent of rice-flour, or fine granulated rice. This firm, after threatening to issue a writ and saying it was perfectly pure when it left them, have now removed the stuff from Birmingham and paid all charges. We find the railway company took the senders' weight; this practice opens the way to serious frauds. If any of your readers are prosecuted for selling adulterated cream of tartar, we will give them what information we have. Yours faithfully,

Edgbaston Street, Birmingham, G. TURLEY & Co.
August 23.

Irish Pharmaceutical Affairs.

98/65. *M.P.S.I.*, referring to the appointment of Mr. T. W. Robinson as examiner in pharmacy, would like to ask the Registrar of the Pharmaceutical Society of Ireland, "Did he accept an application for the post from Mr. Robinson whilst that gentleman was still Vice-President of the Society?" If Mr. Robinson had previously sent him his resignation, "M.P.S.I." remarks that the Vice-President of a chartered corporation cannot divest himself of his office or of its responsibilities merely by writing a letter of resignation. The resignation must be accepted by the Council before it takes effect.

99/46. *L.P.S.I.* writes at some length in support of the comments on the Society's School of Pharmacy which were published last week from "A Student." "Your correspondent," he says, "wants a School of Pharmacy. So does every Irish student, and of botany and materia medica as well. The Society supplies a School of Chemistry of a sort, and the one Dublin 'grinder' does the rest for his own benefit. This is what the student, frequently living in Dublin for four or six months unemployed, has to look forward to for help.

"The prospectus of the Irish Pharmaceutical Society's School of Chemistry promises the student a thorough practical and theoretical training in qualitative work, water-testing, Nesslerising, volumetrics, recognition of alkaloids, a well-fitted laboratory, and the 'higher walks of analytical chemistry,' all for 6*l.* 6*s.* I attended two sessions and part of a third; got an elementary run through 'group'-testing (when desirous to practise on mixtures of salts I brought my own); the B.P. volumetrics—six burettes between twelve or fourteen men—simple tests for alkaloids; no theory, no physics, no air or water; the 'higher walks,' of course, a purely poetical flight. About one quarter of my time was spent hunting for reagents and apparatus. Yet the teachers claim that they give a training quite good enough for the examiners, which, unfortunately, though reflecting no credit on the examinations, is very nearly true.

"I could have got a better course for, I think, 30*s.* at the Kevin Street Technical Schools, and would have done so but for that prospectus; of the medical schools open I heard only poor accounts, and the Royal College of Science did not hold evening classes."

Our correspondent considers that what is wanted is that more scientific specialists should be appointed as examiners, and that a technical museum, reference-library, and reading-room should be established; and he urges Irish students to agitate without ceasing till these are obtained.

MISCELLANEOUS INQUIRIES.

Inquirers will please read the "Memoranda for Correspondents."

A list of "Books for Chemists" is given in THE CHEMISTS' AND DRUGGISTS DIARY, *p.* 317.

For all particulars regarding Educational and Examinational matters refer to our issue of September 19, 1891.

Replies to queries are inserted according to the space open in any week, and insertion on any specific date cannot be guaranteed.

Back numbers of our weekly issue, containing formulæ, &c., occasionally referred to in answers, can be obtained from the Publisher at 4*d. each.*

92/42. *Wales.*—To Attract Moths at dusk entomologists use a mixture of rum and treacle, smeared upon trees or posts.

94/59. *F. Rideal.*—Tomato-sauce:—

Ripe tomatoes	3 doz.
Chili vinegar	1 pint
Garlic	1 oz.
Shallots	1 "
Common salt	2 "
Cayenne pepper	½ drachm
Lemon-juice	5 oz.

Put the tomatoes in a jar, and warm in an oven until tender. Cool, skin, and pulp the fruit, and add to the liquor in the jar, along with the rest of the ingredients. Mix well, and bottle.

90/30. *Radix* (Bridgnorth).—We do not reply to anonymous questions.

98/24. *L. B.*—We cannot reprint a formula because your copy is missing. That would be hardly fair to several thousand other subscribers whose copies are not missing. They do not want their journals made up of reprints. If the formula is worth 4*d.* to you, you can get the back copy from the publisher for that amount. Questions on different subjects must be sent to us on separate sheets of paper.

99/55. *N. O. W.*—The specimen you send us is Mogadore beeswax, apparently adulterated to a considerable extent with goats' fat. It is worth, nominally, about 5*l.* per cwt., but the market is already overstocked at present. You will find references to this kind of wax in our issue of May 14 and previous numbers.

99/49. *Rheum.*—For answers to your questions see the Educational Number, September 19, 1891, which you can get from the publisher for 4*d.*

100/3. *Yorkshireman.*—We think the sale of "paregoric substitute" and such-like preparations is a mild sort of fraud on the public, and we consider it would be dangerous as well for you to sell the poisonous preparation and your apprentice the non-poisonous one. You must, therefore, excuse us if we pass over your questions. You will find plenty of non-poisonous cough-mixtures if you will look back a little. There was one published last week.

99/64. *B. C.*—Quain's "Dictionary of Medicine" is a most valuable work from a professional point of view, but we do not think it is the most useful obtainable book for a counter-prescriber. Can you not in your city see a copy in any library and judge whether it will suit you?

87/9. *Sugar.*—The sample powder which you send as a Colouring-food for Canaries is the usual mixture of mild chillies, turmeric, rice, and sugar, for which you will find various formulæ in back numbers. This one differs a very little from these in seemingly containing a small proportion of ground hemp-seed. It ought to give somebody a good profit at 4*s.* per lb.

99/63. *Inquirer.*—Dental Modelling Composition.—White wax, 2 oz; almond oil, 1 drachm; resin, 20 gr.; colour with carmine and perfume with rose-geranium. See also April 6, 1889, page 495, and August 23, 1890, page 263.

81/69. *J. E.*—As the colouring-matter of annatto-seeds is soluble in spirit of wine, solutions of the alkalies and their carbonates, also in fixed oils, you should have no difficulty in obtaining a Fluid Annatto. Select any of the solvents to suit your purpose, if spirit, reduce it to proof and macerate for a week; if oil or alkali, macerate with a gentle heat.

91/53. *Cream Tart.*—Essence of Walnut-juice.—The only preparation we know of that would answer to this is one used as a vermifuge. It is made by evaporating the juice obtained from unripe walnuts, and is generally given with cinnamon-water. There is a tincture also sometimes prescribed, but we do not know the formula.

99/42. *Inquirer.*—Hard Varnish, suitable for walking-sticks:—

Mastic	4 oz.
Gum juniper	3 "
Venice turpentine	3 "
Methylated spirit	2 pints
Pounded glass, to prevent the resin massing	3 oz.

Mix.

Or—

Gum juniper	8 oz.
Venice turpentine	4 "
Mastic	2 "
Spirit	2 pints

Mix.

95/61. *Radix.*—Magenta Dye.—The best substances to use are the aniline magentas, if for home or amateur work. They should be used by dissolving in boiling water, either alone or slightly acidulated with acid. They are not permanent; but in time bleach if exposed to strong sunshine. It is said that by using a small quantity of Epsom salts in the last rinsing-water, after dying, the colour is rendered more permanent. Very little is required. Ten grains of roseine are said to be sufficient for two yards of silk. Cough and Bronchitis Linctus:—

Liq. morphinæ hydrochlor.	♏xxiv.
Spt. chloroformi	♏xxiv.
Glycerini,	
Aquæ, aa. part. eq. ad	℥j.

Colour with liq. cocci.

ʒj. occasionally.

Or a very effectual linctus may be obtained by dissolving 1 grain of codeine in 1 oz. syrup of lemons.

98/44. *Lincoln.*—The Safest and Best Depilatory is that quoted by Martindale. It will redden the skin occasionally, but does no permanent damage:—

	Parts
Sulphide of barium (in fine powder)	1-3
Starch-powder	3

M.

Make into a paste with water at the time of using, spread over the part required, and remove at the end of five or ten minutes.

Here is another:—

	Oz.
Lime	12
Starch	10
Orpiment	1

Mix, and make into a paste with white of egg when required for use.

In either case substitute powdered orris-root for part of the starch, or perfume with some essential oil, if you wish a superior article.

98/54. *T. B. B.*—The Best Treatment for Nervousness.—Plenty of exercise in the open air, regular meals, cold bathing (or, commencing slightly warm, gradually becoming cold), moderation in tobacco and alcohol, and a cheerful mind. For tonics—quinine, iron, and strychnine, generally in acid combination, viz.:—

Syr. ferri phosph. c. quininâ et strych.	ʒiv. to ℥j.
Aq. chlorof. ad	℥viij.

M.

℥j. ter in die.

In certain cases an alkaline treatment may prove beneficial then use:—

Ferri et am. cit.	gr. 160
Liq. strychninæ	ʒss.
Spt. ammon. aromat.	ʒij.
Aquam ad	℥viij.

M.

100/6. *Black Art.*—Black Varnish, inexpensive, for backing-up positive plates.—To a pint of methylated spirit add sufficient black sealing-wax to give the required body and colour.

LEGAL QUERIES.

Consult Alpe's "Handy-book of Medicine-stamp Duty" in regard to patent-medicine questions.

General information regarding the laws affecting chemists and druggists is printed in THE CHEMISTS' AND DRUGGISTS' DIARY, 1892, *pp.* 161-5.

For stamp duties, licences, Customs regulations, &c., see the DIARY, *pp.* 161-9.

99/65. *H. X.* asks: "What is it that a limited liability company can do which an individual cannot do?" [In regard to pharmacy, we presume. By associating themselves into a registered joint-stock company, limited or not, any seven persons, not one of whom need be a qualified chemist and druggist, may keep open shop for the sale of scheduled poisons, and may assume the title of chemists and druggists. As individuals they cannot do this. For the actual sale of the poisons, however, they require the services of a qualified man.]

100/1. *Waverley* asks: "If a stamped proprietary mixture contain in each dose 4 minims liquor strychninæ, which is *less* than the minimum B.P. dose, ought the said mixture to be labelled 'Poison' and the sale entered in the poison register with the signature of purchaser and witness?" [It is, of course, impossible for us to define how far a chemist may go in disregarding the law without risk. The Act says clearly enough what you are to do when you sell liquor strychninæ; it says nothing about the dose. If you think, however, that the infringement you suggest would be such a very little offence that no one could reasonably object, you must take your chance. But you can hardly expect us to endorse your law-breaking inclinations.]

98/56. *Studens.*—We do not understand wherein you think we are mistaken. We were quite aware of the circumstance you mention.

96/11. *W. M. L. W.*—Any persons who lay down poisoned grain "on any ground or other exposed place," and any persons who sell such grain or expose it for sale, are liable to 10*l.* penalties. The Act does not say that it is unlawful to give away such grain, but the chemist who wants to avoid trouble had better not try to evade the law by such subterfuges.

98/58. *J. K.*—We have answered your point frequently, as far as it can be answered in the absence of an authoritative decision. Your cough-mixture contains some morphia. The Pharmacy Act requires that when you sell a poison you shall label it with "the name of the article, and the word 'poison,' and with the name and address of the seller of the poison." The makers of proprietary medicines containing poisons generally have assumed that it is necessary to give the name of the poison. They have, no doubt, been legally advised to that effect, and perhaps the advice is right. But we do not think the Act requires that construction. Take chlorodyne, for example. Surely "the name of the article" in that case is "chlorodyne." That name, the word "poison," and the name and address of the seller, seem to us to be all that the statute requires. You must, however, only take this opinion for what it may seem to you to be worth, as no Court has ever been asked to decide this point.

96/59. *E. F. F.*—Your label seems unquestionably to render the preparation liable to medicine-stamp duty.

92/65. *G. W. F.*—We cannot quite make out your case. Have you in any way, by circular or otherwise, advertised the preparation as beneficial in any ailment?

97/41. *W. W.*—We cannot give you decisions in interpretation of the Pharmacy Act. You must exercise your own judgment and take some risk. In your place we should not label an article "poison" when it would be manifestly absurd to do so, but we cannot guarantee that in so acting you would never be fined.

97/14. *R. T. M.*—We do not consider that salts of lemon or ointments of white or red precipitate are poisons within the meaning of the Pharmacy Act. If we are right, unqualified persons may sell them and they need not be labelled "poison."

101/7. *Q. K. A.*—Your only way of learning authoritatively whether your elixir is liable to Excise duty as a wine is to send a sample to the Board of Inland Revenue. Unless it is in their opinion so medicated as to be unfitted for use as a beverage they will require the vendor to hold a licence, and there is practically no appeal from their decision.

Two or three correspondents criticise our reply in this column last week to "Chlorof." We had been asked whether, in view of what was said in the circular issued by the Pharmaceutical Council, it was necessary to label as poison an iron and quinine tonic made up with aq. chloroform. We said, "Certainly it is if that document be read literally." Now "Phosphate" and others inform us that in the Schedule chloroform is named, but "its preparations" are not added. Therefore, say they, spirit and water of chloroform are not required to be labelled "poison." We are well aware of the fact thus brought before us, and we agree with the inference drawn from it. All we say is that the Pharmaceutical Council's circular declares that "proprietary preparations containing poisons must be labelled 'poison.'" A proprietary preparation made up with aqua chloroformi contains some chloroform, and therefore, if the document be read literally, must be labelled "poison." We think this interpretation of the Act is incorrect, but we were asked what the Council said.

100/63. *Caution.*—It is not usual to treat fly-papers as if they were preparations of arsenic; but we cannot say that they are not, or that some day somebody will not be prosecuted and fined for not registering the sale of them. There is no law limiting the age of persons to whom they may be sold.

96/44. *Pons.*—Compound syrup of the hypophosphites is a chemical food, and a chemical food, if recommended for the prevention, cure, or relief of ailments, is liable to duty (see "Alpe," pp. 61, 62, where examples, both of dutiable and non-dutiable descriptions, are given). The "extracts from the medical journals" printed upon your label are apparently the cause of liability, the statements that "the hypophosphites are specially used in weakly and rickety children," and that they "remove erratic pains," being, no doubt, those upon which the authorities rely. We are aware that syrup of the hypophosphites has been previously held to be chargeable with duty, but only by reference to the recommendation for prevention, cure, and relief, &c., and we have not heard of any case recently.

101/60. *F. T. P.*—It is not necessary to put medicine stamps on articles to be sold in Ireland. But if you sell the articles (wholesale or retail) in England, to go to Ireland or elsewhere, you must stamp them. You may consign your goods to a *bonâ-fide* agent.

Information Wanted.

Replies to the following are requested by subscribers of THE CHEMIST AND DRUGGIST.

98/72. "Dulcine" for cotton-handkerchief dressing: maker wanted.

100/21. Patent "Wireine" socks: maker wanted.

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YOU DIRTY BOY!

(25 inches high.)

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NON-TOXIC AND NON-IRRITANT.

Readily soluble in water. It dissolves Uric Acid concretions twelve times more freely than Lithia Carbonate.

Is indicated in all cases of Gouty Affections, and in Stone or Gravel of the Bladder and Kidneys.

For literature see "The Therapist," Vols. I. and II., published by Aug. Siegle, 30 Lime St., London, E.C.

PIPERAZINE may be obtained in Crystals wholesale at **17/6** per oz. net, or in 1-GRAMME COMPRESSED TABLETS, pure, without any admixture, Schering's own manufacture, at **7/6** per dozen gramme Tablets.

Minimum Dose—1 Gramme or 15 Grains per day in a Pint of Water.

This may be divided into two or three portions during the day.

PHENOCOLL HYDROCHLORIDE

(PATENT).

NON-TOXIC, AND HAS NO EFFECT ON THE HEART.

This is a preferable analgesic having no toxic effects, nor does it interfere with the circulation of the blood, nor the heart, nor does it reduce the temperature below normal.

Is indicated in all cases accompanied by feverish symptoms, particularly in Rheumatism, Neuralgia, and similar ailments.

MALARIAL FEVER YIELDS TO NO OTHER REMEDY SO WELL.

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Liq. Euonymin et Pepsine Co.

Liq. Pepticus.

Liq. Santal c. Buchu et Cubeba.

Liq. Copaibæ c. Buchu, Cubeba, et Matico.

TELEGRAPHIC ADDRESS: "EDULCINE."

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(Pharmaciens de 1 classe),

WHOLESALE AND RETAIL CHEMISTS AND DRUGGISTS.

CH. DELACRE, Pharmacien.
AMB. DELACRE, Pharmacien.

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COMPOUND ANÆSTHETIC ETHER,
For producing Local Anæsthesia.
In 4-oz., 10-oz., and 20-oz. Stoppered Bottles, 2s., 4s., and 7s.

OZONIC ETHER,
In 2-oz., 4-oz., 8-oz., and 16-oz. Stoppered Bottles, 2s., 3s. 6d., 7s., and 12s.

PEROXIDE OF HYDROGEN,
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ETHYLATE OF SODIUM
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STYPTIC COLLOID,
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Nothing left in the Beef.

Sometimes the change in the taste of food is equivalent to change of air and scenery, but it is especially consoling to know that by adopting a change from the regular course we can now substitute a meat food far richer in nutriment than can possibly be obtained in any form of concentrated cooked meat, extract, or essences, in which by the process of manufacture the albuminoids or flesh-forming elements are more or less excluded. Liquor Carnis (Caffyn) contains all the nutriment of Beef, as will be seen by a glance at the manufacturing process:—" Our means of extracting cold juice from the " beef is effected by hydraulic pressure (up to three hundred tons) and **without** " **heat**; the juice is then collected in glass standards, the hydro-carbon added, " the fat rises to the top, the clear fluid (Liquor Carnis) is syphoned from the " centre, and this is Caffyn's process in a nutshell."

Diarrhœa in Infants.

Many of the ailments from which we suffer during our sojourn on this earth take their origin from a mischievous and erroneous dietary during our childhood. And when we reflect that some ever-recurring torment of our lives may be traced to the misguided indulgence of those who brought us up, surely we ought to do our best to avert a like misfortune in the little ones growing up around us. It has been the writer's lot to work much among sick children, and he has been struck with the small amount of knowledge of the principles of dietetics possessed by parents. During childhood food has not only to supply material to repair waste, but it has also to help the body to grow. No wonder, then, that children have good appetites, or that most of their ailments are due to indigestion, of which the commonest form is diarrhœa. This, when occurring during teething, is generally regarded as beneficial, as a means of lessening the fever from which the child is suffering. But when the disease becomes chronic it is a continual drain on the growing system, and should be stopped. It is often due to an irritating diet, and therefore we begin our treatment with a dose of castor oil, following it up with magnesia and logwood. But the food must be changed, and none better can be found than Caffyn's Malto-Carnis, dissolved in warm milk. It is quite bland and non-irritating, and supplies more nourishment than any other meat juice which we can procure, and at the same time produces less waste to disturb the over-sensitive bowels. We have every confidence that if it is once tried it will be used again and again.

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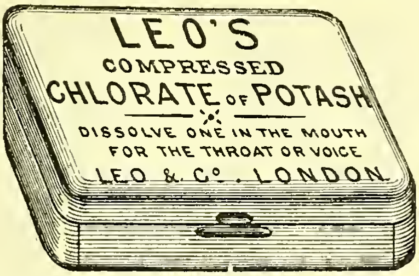

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2/9	Aubergier's Syrup	27/
1/9	,, Pâté	15/
6/6	Bay Rum	57/
3/6	Ditto	31/
2/	Belloc's Charcoal	15/
1/9	,, Lozenges	15/
4/6	Blancard's Pills	32/
2/6	Ditto	18/
4/6	Brou's Injection	27/
4/6	Bugeaud's Wine	36/
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2/	Ditto	14/6
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4/6	Capsules Matico	35/
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2/9	,, Pills	24/
4/6	Clin's Dragées Bromide Cam.	45/
5/	Eau de Botot (Genuine)	40/
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2/	Espic's Cigarettes	13/6
4/6	Elixir de Coca (Mariani)	48/
2/9	Flon's Syrup	23/
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2/3	Granules Arsen. Acid	13/6
2/9	,, ,, Iron	14/5
2/9	,, ,, Soda	15/4
2/9	Grimault's Syrup Lime	24/

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9/	Laville's Gout Tincture	81/
9/	,, ,, Pills	78/
1/1½	Papier Fayard	6/9
2/3	Ditto	13/6
2/3	Papier Fruneau	14/6
4/	Ditto	24/6
1/9	Pâté d'Aubergier	15/
1/9	,, de Berthé	15/6
2/9	,, de Coca Mariani	25/
1/9	,, de Georgé	14/6
1/1½	,, Ditto	9/
1/6	,, de Nafé	13/6
1/9	,, Regnauld	14/6
7/	Pierlot's Valerian	60/

Retail		Per doz
2/9	Rabuteau's Drgées Ferrug.	24/6
7/	,, Elixir Ferrug.	65/
2/9	Rabuteau's Syrup Ferrug.	24/6
4/	Racahout des Arabes	31/
4/6	Reynal's Bougies	38/
2/9	Ricord's Injection	24/
4/6	,, Capsules	36/
9/	,, Syrup..90/; 4/6,	42/
1/6	Star Paper	11/
1/9	Vallet's Pills	14/6
2/9	Ditto	23/
4/6	Veloutine (Whte, Pnk, Crm.)	28/
3/6	Ditto ditto	22/
2/9	Vichot's Trochisques	22/
4/6	Vin Mariani	36/

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SARG'S ORIGINAL BEEHIVE BRAND.

CERESINE WAX. CERESINE WAX.

THE ONLY PERFECT SUBSTITUTE FOR BEESWAX AT ONE-THIRD OF ITS COST.

Contains no Mineral Oil or Paraffin, but is perfectly PURE. Highly refined, extra hard. White, Natural Yellow, & Orange.

Supplied in square blocks, each wrapped in paper and packed in cases of 1 cwt. each.

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We hold a large stock of the following seasonable goods. Orders for any of these will oblige.

ENEMAS. SPONGE BAGS. SPONGES.
PHOTOGRAPHIC DRY PLATES, &c. &c. SPRAYS.
TOBACCO IN PACKETS, at Makers' Prices.
FILTERS. FLESH GLOVES. TRUSSES.
TEETHING TEATS, "LILY," "SPENCE'S," &c., &c.
ELASTIC STOCKINGS, Superior Make.
TEATS, TUBING, &c., &c.
SEIDLITZ POWDERS, B.P. strength (full weight), 1/- boxes, 5/6 doz.

95 FARRINGDON ST., LONDON, E.C.
ESTABLISHED UPWARDS OF A CENTURY.

"SPECIALITIES" OF WIDE REPUTATION

Suitably Packed for Home and Export, in various Languages, for all Markets.

'COAGULINE' The Cement for all Broken Articles.

LINSEED, Chloro.-Linseed and Throat Lozenges, Jujubes, &c.

CUE CEMENT, Cue Tips, Wafers, FIXERS, CHALKS, &c.

'LAVA,' A fusible, imperishable CEMENT.

Glass Valve Tubes, For Feeding Bottles.

ABSORBENT COTTON WOOL.

COMPOUND ESSENCE OF LINSEED, FOR COUGHS AND COLDS.

OXYMEL SCILLÆ (exceptionally brilliant) Dec. Senegæ Conct.

PHOSPHOSACCHARITE.

GLYCERLINE. Linum Glycerinum.

'SAPO-LINI' LINSEED SOAP, IN "BROWN WINDSOR" AND "ROSOTTO."

CHESHIRE BIRDLIME.

EMOLLIENT For Chapped Hands, &c

ELASTIC STOCKINGS, KNEE CAPS, SOCKS, ETC.

CHEMICAL Disinfectant

GUN COVER and CARRIER.

'THERMONE' HEAT RADIATOR.

KAY'S TIC PILLS

LINUM CATHARTICUM PILLS

Prices, Circulars with Name and Address, Specimens, Show Cards, Glass Tablets, &c., &c., on application.

KAY BROTHERS LIMITED, Laboratory and Works, ST. PETERSGATE MILLS, **STOCKPORT,** Founded A.D. 1786. Incorporated 1887.

BOOT'S PURE DRUG CO., LIM.

DISPENSING AND FAMILY CHEMISTS,

PATENT MEDICINE VENDORS & DEALERS IN MEDICINAL WATERS,

Having some twenty branches in NOTTINGHAM, SHEFFIELD, LINCOLN, DERBY, GRIMSBY, ILKESTON, GRANTHAM, and BURTON-ON-TRENT, have exceptional opportunities of bringing Proprietary Articles before the public, and they will be glad to take up special agencies for articles of sterling merit where the proprietors are willing to meet their effort to make a push of the same. Careful supervision of the distribution of advertising matter will be undertaken Correspondence invited.

JESSE BOOT, Managing Director, Island St., NOTTINGHAM.

SPECIALITIES.

Castor Oil.
Almond Oil.
Olive Oil.
Cod-liver Oil.
Acetic Acid.
Tartaric Acid.
Phosphoric Acid.
Salicylic Acid.

Camphor.
Glycerine.
Lithia Salts.
Tartar Emetic.
Castile Soap.
Pepsin, P.B.

Albumen.
Herbs & Extracts.
Insect Powder.
Mercurials.
Camomiles.

Ess. of Lemon.
Gums. Perfumes.
American Cotton Oil, etc.

IMPORTERS—EXPORTERS.

COMMISSION MERCHANTS.

FUERST BROS.

LONDON, E.C., 17 Philpot Lane; and NEW YORK, 2 & 4 Stone Street.

SAMPLES AND PRICES ON APPLICATION.

We only supply goods direct from Manufacturers personally known to ourselves. We can consequently vouch for the purity of the articles we sell.

CORRESPONDENCE SOLICITED.

SEASONABLE LINES FOR SUMMER & SEASIDE TRADE

CHECK SPONGE BAGS.

BEST QUALITY.

Size	7×6	8×7	9×8	10×9	11×10	12×11
No.	1	2	3	4	5	6
Per doz.	4/6	5/6	7/-	8/6	10/-	12/-

SECOND OR THIN QUALITY.

No.	1	2	3	4	5	6
Per doz.	3/6	4/-	5/-	5/6	6/3	7/9

INSECT-POWDER TINS

	1/-	6*d.*	3*d.*	1*d.*
Per gross	9/-	7/9	5/6	2/3

FLESH GLOVES.

6*d.* In glass top boxes, per box.. 3/6

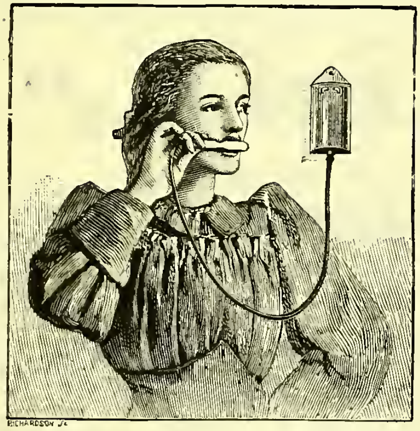
	Per doz.
3*d.* Turco	2/-
6*d.* "	2/8
6*d.* No. 42, rough	2/3
6*d.* Sahara	3/3
6*d.* Eastbourne	3/3
1/- Turco	4/6
1/- Super Turco	5/6
1/- Monte Carlo	5/6
1/- Victoria	6/-

SMELLING-SALT BOTTLES.

Fig. 238a.

	Per doz.
6*d.* Watch	2/6
6*d.* Assorted Colours	3/6
9*d.* Octagon, clear glass	4/-
6*d.* Purse Watch	4/6
1/- " "	7/-
1/- China (as Fig. 238a)	8/-
1/6 Octagon Bottle, clear cut stopper	9/-

F. NEWBERY & SONS, Druggists' Sundriesmen, 1 & 3 King Edward St., London, E.C.



RETAIL 1/6. RETAIL 1/6.

THE DOUCHE
PATENT
TOOTH BRUSH.

By the use of this Invention a constant stream of water is secured whilst brushing the teeth, and as a Sanitary Requisite for the Toilet it therefore stands unrivalled.

TO BE HAD OF ALL THE WHOLESALE HOUSES.

M. BAILEY & CO.
MANUFACTURERS OF DRUGGISTS' SUNDRIES.

M. B. & Co. beg to call the attention of the Trade to the following articles manufactured by them:—

Glass Syringes, Nipple Shields, Breast Exhausters, Fittings for Feeding Bottles, Tubes, and Tube Work in all its branches, &c., &c.

Sole Proprietors and Manufacturers of J. Brooks & Co.'s celebrated Specialities:—Winter Cream, Lip Salve, Solidified Camphor Cream, Glycerine Jelly, Perfumery, &c., &c.

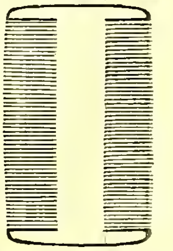
Buyers are cautioned against imitations of these World-renowned preparations. None are genuine unless bearing our Registered Trade Mark.

TRADE MARK

May be obtained through any of the Wholesale Houses. Wholesale and Export only from

M. BAILEY & CO., 32 and 34 Buckingham Road. KINGSLAND, N.

EXPORT CHEMISTS' SUNDRIES



Graduated white Glass Measures and Tumblers; Screw-neck, Plain, and Boat-shape Feeding Bottles, Male and Female Glass Syringes, Decorated and plain China Feeding Cups, Bed Pans, tall round white Medicine Phials, Crystal Homœos, Stoppered Bottles, Dressing and Small-tooth Combs, &c., specially suitable for India and Colonies.

HENRY W. BUSH & CO.

MANUFACTURERS AND IMPORTERS,

BURY STREET, ST. MARY AXE, LONDON, E.C.

Guy's Tonic.

We think it advisable to inform the Trade that the medicines sold by us do not contain any poisonous ingredient, and can be sold with perfect confidence by Chemists to their own profit and their customers' safety and benefit. Our preparations are now in brisk demand in all parts of the United Kingdom, and our advertising policy will be steadily enlarged.

Guy's Fruit Pills.

Guy's Fruit Pills are usually required in association with Guy's Tonic to secure the best results, and instructions to this effect accompany each bottle of Guy's Tonic. It is quite evident, therefore, that wherever Guy's Tonic is in demand Guy's Fruit Pills will be asked for.

We will send 1 dozen of the 1*s.* 1½*d.* size post free to any Chemist on receipt of remittance for 10/6.

FOR FULLER PARTICULARS AND TRADE TERMS, ADDRESS—

GUY'S TONIC COMPANY, 4 Ludgate Circus, LONDON, E.C.

SEA-SICKNESS—A THING OF THE PAST.

"NEPTULINA,"

(REGISTERED TRADE MARK, No. 158940.)

A New and Marvellous Remedy which absolutely PREVENTS and CURES

SEA-SICKNESS.

Retail Price, 2*s.* 9*d.* and 4*s.* 6*d.*

Price to the Trade, 27s. and 44s. Doz. Full Retail Price must in all cases be charged; no cutting allowed. Wholesale London Depot, Messrs. NEWBERY & SONS. Agent for the Proprietor, JOHN NOBLE, M.P.S., Chemist, South Shields.

Her Hawaiian Majesty's Consulate General, Toronto, 30th September, 1891.

Dear Sir,—I used a bottle of your "NEPTULINA" on the voyage from Liverpool to New York by the "Etruria," arriving on the 26th inst., and although we had a rough passage I entirely escaped Sea-Sickness.

Yours truly,
J. ENOCH THOMPSON, J.P., Hawaiian Consul General.

[*This gentleman reported that in all previous voyages he suffered from Sea-Sickness.*]

"SEQUAH'S OIL." (Regd.)

SEQUAH'S PRAIRIE FLOWER,

SEQUAH'S OIL, AND

SEQUAH'S INSTANT RELIEF

Always give satisfaction.

SEQUAH, LIMITED, 44 FARRINGDON ST., E.C.

SPECIAL NOTICE.—At the request of a large number of the Retail Trade, who are desirous of obtaining small quantities of our Goods at the lowest possible prices, we beg to inform the Trade that we have decided to supply the Goods in dozen lots, carriage paid, at our lowest terms—viz., 18/6 per dozen, Cash with Order. This offer holds good for the Home Trade only.

TRADE MARK.

"SEQUAH INDIAN PRAIRIE FLOWER."

REGISTERED.

TRADE MARK NO. 158933.

Zirrizmah

An Anti-inflammatory Liniment.

PROVISIONALLY PROTECTED.

Marvellously efficacious in Chronic Bronchitis (and Spasmodic Asthma), Sore Throat, Influenza, Cold on Chest, Abdominal Pains from Cold Rheumatism, Gout, Lumbago, Sciatica, Cramp, &c. A preventive; never stains or weakens; no restriction.

4/6 and 2/9 net. Terms, cash with order—One dozen, 40/- and 24/- respectively, carriage paid.

Orders to private address of Proprietress—106 SHEPHERD'S BUSH ROAD, LONDON, W.

IMPORTANT TO PURCHASERS.

PLUMP YOUR SEASON'S ORDER WITH

VINCENT WOOD

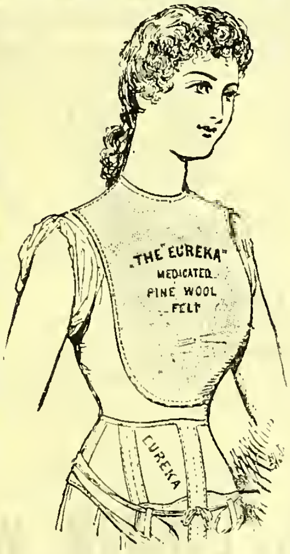
FOR

CHEST PROTECTORS

AND

SURGICAL APPLIANCES.

SEASON 1892–93.


"THE EUREKA" MEDICATED PINE WOOL FELT
EUREKA

I can guarantee you better goods and prices than any house in the Trade.

I am now making Protectors of every shape and style, as under:
Scarlet and White Felt (washable), Felt and Chamois Skin, Scarlet Flannel and Lambs' Wool, wadded (quilted); Natural Wool Felt, commonly called Fir Felt; Natural Health Flannel, similar style of Jaeger's, and also the Medicated Pine Wool Felt, my original invention.

Special Patterns made and quotations sent. Models fitted up with Protectors and Belts free.

Makers of every kind of Truss, Belt, Suspender, Expanding Brace, Electric, Galvanic, and Magnetic Appliances, &c.

PLEASE NOTE NAME AND ADDRESS:—

VINCENT WOOD, 3 St. Andrew's Street, (adjoining Church), **HOLBORN CIRCUS, E.C.**
AND ALL WHOLESALE HOUSES.

Eucalyptus Globulus

The undersigned call the attention of Medical Men and Pharmacists to the superior nature of their

Pure Oil of Eucalyptus Globulus,

distilled by them from leaves of Blue Gum trees cultivated in California. It should be noted that the reputation of Eucalyptus Oil is solely based upon the virtues of the Globulus variety; but very little of this now comes into the market from Australia, because it can only be produced there at from 15*s*. to 20*s*. per lb.

The DOWNIE B. I. P. CO. have extensive forests of Blue Gum trees in California, grown from Australian E. GLOBULUS seeds. The leaves of these trees are used for manufacturing an aqueous extract, as a boiler-incrustation preventive, and the company have lately perfected the means for collecting the Essential Oil. This Oil is of great purity, is unmixed with kindred bodies, and contains the full percentage of Eucalyptol. Since it is obtained as a by-product, the manufacturers place it on the market at a price which in other circumstances would be impossible.

Please specify "DOWNIE'S" in ordering through any Wholesale House, as there are many adulterated and worthless varieties in the market.

DOWNIE B. I. P. CO.

4 REDCROSS STREET, LIVERPOOL; and
204 MARKET ST., SAN FRANCISCO.

By Royal Letters Patent.

THE TEETHING PADS TO SELL.

THE "LILY" BABY COMFORTER.

The teats are seamless, and always retain their proper shape.
THE CHILD CANNOT POSSIBLY IMBIBE AIR.

All Patterns may now be had, fitted with Marriott's New Patent Ring Socket, No. 17,135,

For inserting Bone, India-rubber, and other Rings into Teething Pads, Baby Comforters, or other articles without cutting the ring, which is guaranteed not to break.

3d., 4d., 6d., 9d., & 1s. Retail.

Patentees and Manufacturers, **E. MARRIOTT & CO.,** HASTINGS.

SPECIAL EXPORT TERMS FOR LARGE ORDERS.

69

SUSPENSORY BANDAGE
The ABC Regd
W.H.B.& S.

A GREAT SUCCESS!!

BAILEY'S SUSPENSORY BANDAGES.

A. B. C. SYSTEM.

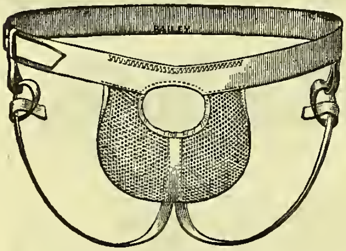


Fig. 1.

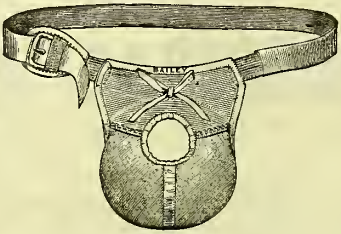


Fig. 2.

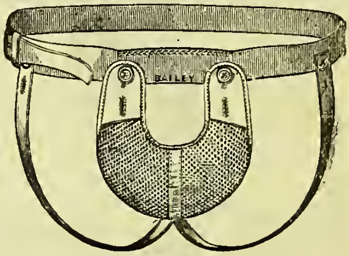


Fig. 3.

Cabinet of 2 dozen assorted, **30/-** USUAL DISCOUNT.

TESTIMONIAL. *The Foregate, WORCESTER.*

GENTLEMEN,—Please repeat our last order for "Suspensory Bandages." We think your idea of arranging the sizes and qualities by the use of numbers and letters a very excellent one, as it is most convenient to the Chemist in ordering, and we find our customers make use of your method. It brings us many repeat orders.

Yours faithfully, *ANDERSON & VIRGO.*

W. H. BAILEY & SON, 38 OXFORD ST., LONDON, W.

TELEGRAPHIC ADDRESS—"BAYLEAF LONDON."

ESTABLISHED 1830.

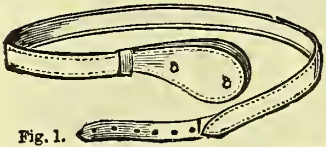


Fig. 1.

TRUSSES.

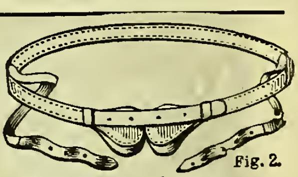


Fig. 2.

The Best and Cheapest Trusses of all kinds in the Wholesale and Export Market are manufactured by

LINDSEY & SONS.

ELASTIC STOCKINGS, SUSPENDERS, AND SURGICAL BANDAGES OF ALL KINDS.

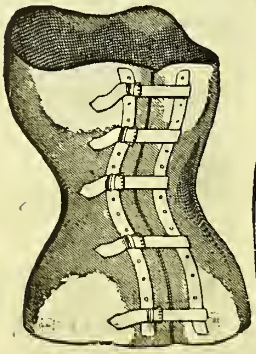
WHOLESALE AND EXPORT. THE LARGEST SHIPPERS IN THE TRADE.

ILLUSTRATED PRICE LIST POST FREE TO ANY ADDRESS.

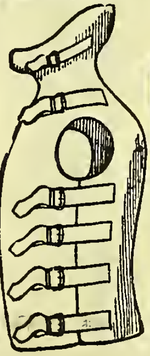
32 LUDGATE HILL, and 40 GRACECHURCH STREET, E.C.

COCKING'S ADAPTABLE PORO-PLASTIC JACKETS AND SPLINTS. Patentee and Sole Manufacturer, J. T. COCKING, PLYMOUTH.

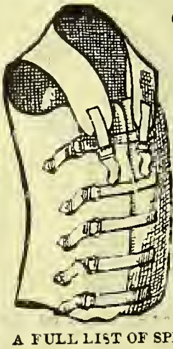
Jacket.



Cervical Jacket, No. 1.



Cervical Jacket, No. 3.



JACKET
(in cases of slight deformity

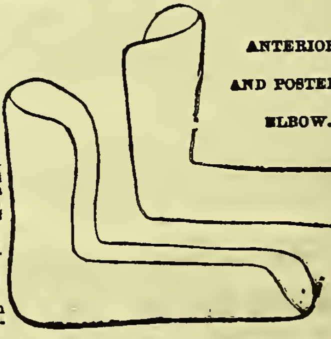
INSTRUCTIONS
FOR MEASUREMENT

Circumference at axilla.
" waist.
" hips.
Length from axilla to great trochanter.
In severe angular cases circumference over apex of curve, position of ditto, and contour should be given; in lateral cases a description of the case.
In all cases it must be stated if for male or female.

CERVICAL JACKETS.

Same measurements required and circumference at neck, and length from neck to axilla.

Any part of the Jacket can in the process of manufacture be left soft.



ANTERIOR AND POSTERIOR ELBOW.

A FULL LIST OF SPLINTS AND PORO-PLASTIC IN SHEETS MAY BE HAD ON APPLICATION.

WM. WARNE & CO.

INDIA RUBBER

MANUFACTURERS.

Patentees of the New Moulded Enema, &c.

Manufacturers of every description of
SURGICAL,
CHEMICAL,
GYMNASTIC,
DOMESTIC,
VETERINARY,
and
MECHANICAL
ARTICLES.
SYRINGES,
ENEMAS,

WATER BEDS
and
CUSHIONS,
THREAD,
HOSE, TUBE,
TOBACCO
POUCHES,
MATS, BANDS,
WATERPROOF
GARMENTS,
etc.

MANUFACTURERS OF EVERY DESCRIPTION OF INDIA RUBBER.

29 GRESHAM ST., LONDON, E.C.

WHOLESALE AND EXPORT.

THE ONLY PERFECT SUSPENSORY BANDAGE

IS THE

SYRACUSE,

With Self-Adjusting Loop at Back of Pouch.

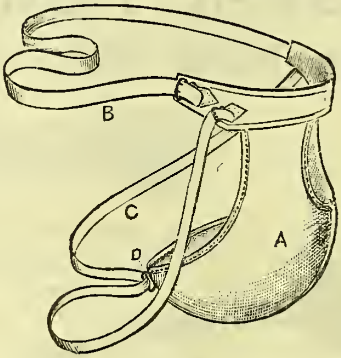
(PATENTED IN ENGLAND.)

HAS THE LARGEST SALE OF ANY SUSPENSORY BANDAGE IN THE STATES.

3 SIZES—Large, Medium, and Small.

Made in Seven Qualities, to suit all Markets.

Each Bandage is carded separately, with Printed Guarantee.



Each Bandage bears a Guarantee to give satisfaction to wearer, or money returned at our expense.

COTTON POUCHES.

Nos.	10	16	21	
	6/6	12/	18/	per doz.

SILK POUCHES.

Nos.	26	31	34	36	
	24/	30/	48/	72/	per doz.

We are still prepared to mail a Free Sample of No. 26 to any Chemist in the United Kingdom who would like to inspect our goods, and would call attention to the fact that our Bandages are advertised in all the leading Athletic papers, and are largely used by Athletes of all kinds. We would strongly recommend all Chemists, now that the touring season is about commencing, to hold small stock, which will enable them to supply our Bandages when asked for.

May be obtained from all leading Druggists' Sundries Houses throughout the Country, or from the

WELLS MANUFACTURING CO. (H. C. Quelch), LUDGATE SQUARE, LONDON, E.C.

PURE PARA RUBBER BANDAGES.

TRADE MARK

ASPERA AD PER ASTRA

REGISTERED.

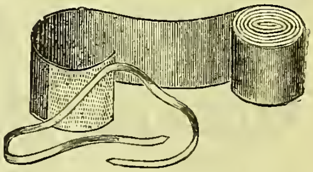
GAUGE.		5 Feet.	7½ Feet.	10 Feet.	15 Feet.	21 Feet.
20	2½ in...	2/	3/	4/2	6/9	8/3 each.
	3 „ ..	2/3	3/6	4/10	6/9	9/6 „
22	2½ „ ..	1/7	2/5	3/6	4/9	6/9 „
	3 „ ..	1/11	2/11	4/	5/9	7/9 „
25	2½ „ ..	1/2	1/11	2/6	3/6	5/2 „
	3 „ ..	1/6	2/4	3/2	4/2	6/6 „

Perforated, 3/ dozen extra.

POROUS BANDAGES.

GAUGE.	5 Feet.	7½ Feet.	10 Feet.	15 Feet.	21 Feet.
2½ in...	1/10	2/10	4/	5/3	7/8 each.
3 „ ..	2/3	3/4	4/6	6/6	8/10 „

Subject to 10 % and 5 % monthly a/c.



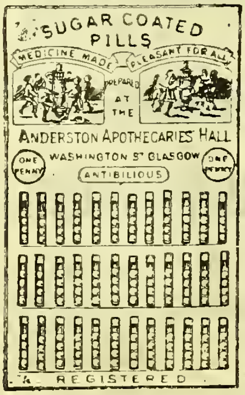
Special Discounts for Large Quantities.

F. SCHUTZE & CO., 36a ALDERSGATE ST., LONDON, E.C.

Manufacturers of Bandages and Druggists' Sundries of all kinds.

Telegraphic Address—"ODORATORS LONDON."

1D. PILLS!! SUGAR-COATED!! 1D. PILLS!!



Medicine made pleasant for all.

The Cheapest and Best Family Medicine The most Saleable Article in the Market Composed of the purest Drugs. Will keep good in all Climates any length of time

The following varieties are put up in Glass Tubes, on Cards of 3 doz., or in gross boxes, at one penny per tube :—

- Antibilious
- Asafœtida
- Bland
- Castor Oil
- Colocynth
- Dandelion
- Female
- Hamilton
- Liver
- Podophyllin
- Quinine
- Rhubarb
- Tonic
- Vegetable, &c.

Other varieties can be had if required Terms—8s. per Gross, cash; 6 Gross assorted, in handsome mahogany glass case for 48s. Sent free by parcel post on receipt of P. O. Order or Postage Stamps. Agents and Purchasers of large quantities get a liberal discount. *Send for Sample.*

Aromatic Cachous, Chlorate of Potash Pellets and other varieties put up as above at same price.

Agents Wanted.—Apply at the

Anderston Apothecaries' Hall, Washington St., GLASGOW

Telegraphic Address—"Liliputian Glasgow."

Trade Mark. Registered.

THE

ASSOCIATION for the SUPPLY of PURE VACCINE LYMPH

12 PALL MALL EAST, LONDON, S.W.

Sole Agents for

DR. WARLOMONT'S CALF VACCINE.

Tubes, 2s. each; Half Tubes, 1s. each. Pomade in vials, 5s.

HUMAN VACCINE, from healthy children only, microscopically examined and source quoted. Tubes two-thirds full, 1s. 8d. each; Tubes one-third full and Lancet-charged points, 1s. each; Pin-points, 1s. 1d. each. Eighteen charged Small Points, 5s. Tubes two-thirds full (same as those mentioned above, but without source), in quantities for export, £5 per 100 Tubes. Pin-points uncharged, 1s. per dozen. Vaccine Ejectors, 1s. 3d. each, including postage. Vaccinations by appointment. P.O.O.s (including postage, and crossed London and Westminster Bank) with orders, payable to EDWARD DARKE, *Secretary.*

Office hours, 10 to 4. Saturdays 10 to 2.

ENEMAS! ENEMAS! ENEMAS!

The Best and Cheapest Line ever offered—"THE SPECIAL"—made in one continuous piece of pure Black Indiarubber, with White Metal Pin Valve and Bone Pipe, 18/- per dozen.

Elastic Gum Vagina Pipes ...	3/- per doz.	Oval Cardboard Boxes ...	1/3 per doz.
Slide Cedar-wood Boxes ...	3/- „	Oval Leather Boxes	6/- „

GEORGE SCRIVEN, Brierley Hill, STAFFORDSHIRE

REGISTERED.—More effectual than Mustard Leaves. May be obtained through any Wholesale House. 6*d*. Tins, price 2*s*. 8*d*. per dozen.

CAPSICUM is highly recommended in *The Lancet* by Sir J—— S——, M.D., and Dr. H—— J—— B—— for the treatment of Rheumatism, Neuralgia, Bronchitis, Bronchial Catarrh, Sub-acute Gout, &c.

DENOUAL'S MEDICINAL CAPSULES

ARE THE BEST AND CHEAPEST.

Attention is called to the following articles:—

SANTAL OIL CAPSULES, PERUVIAN MIXTURE CAPSULES, COPAIBA BALSAM CAPSULES, CUBEB OIL AND COPAIBA CAPSULES, MALE FERN CAPSULES.

ALL KINDS OF CAPSULES.

ON THESE **MEDICINAL CAPSULES** CHEMISTS ARE ALLOWED LARGE PROFIT.

DENOUAL'S INJECTION.

ALL DRUGS WARRANTED TO BE GENUINE

JULES DENOUAL,
Carlton House, 4 New Cross Road, London, S.E.

LINT.

Telegrams—
"LINT LIVERPOOL."

THE
LIVERPOOL PATENT LINT CO.,
MARK ST. MILLS,
NETHERFIELD ROAD NORTH,
LIVERPOOL.

TRADE MARK.

MANUFACTURERS OF
FLAX, & COTTON, LINTS,
ABSORBENT, AND CARDED
COTTON WOOLS,
ABSORBENT, OPEN WHITE, and GREY
BANDAGES,
SURGEON'S, AND CARBOLIZED
TOW.

THE SURGEONS' LINT,

V.B. QUALITY.

The superior quality of Newsome's Absorbent Surgeons' Lint is universally admitted. The V.B. quality is quite pure and of great superficial area and exquisite softness. The C., D., E., and F. qualities are equally pure and absorbent; E. is stronger in fabric.

NEWSOME' BLEACHED ROLLED BANDAGES, 3 in., 2½ in., 2 in. Also SURGICAL ABSORBENT OPEN BANDAGES.

Specially Bleached & Grey Carded Cotton Wools, Absorbent & Bleached & Grey Waddings; also Sheet Waddings, Tow, &c.

THE TRADE SUPPLIED THROUGH THE LONDON AND PROVINCIAL WHOLESALE HOUSES, OR FROM

C. NEWSOME, MANUFACTURER, BEEHIVE MILLS, ANCOATS, **MANCHESTER.**

London Agents—B. PRATT & CO., 1 Wood Street, E.C. *Telegraphic Address*—"Newsome, Ancoats, Manchester."

BREFFITS'

FRENCH SQUARES, tall narrow mouth, white flint glass—

Size	½	1	1½	2	3	4	6	8	10	12	16	20	oz.
With mouths for corks	5/6	6/	7/	8/	9/6	11/	12/6	15/	18/	23/	31/	34/	per gross.
Fitted box-topped corks	8/6	9/	10/	11/	12/6	14/6	16/	18/6	22/	27/	36/	40/	,,
Ground-glass stoppered	14/6	15/	16/	17/	20/	22/	25/	30/	34/	38/	48/	56/	,,

FRENCH SQUARES, tall wide mouth, white flint glass—

Size	½	1	1½	2	3	4	6	8	10	12	16	20	oz.
With mouths for corks	5/6	6/	7/	8/	9/6	11/	12/6	15/	18/	23/	31/	34/	per gross.
Fitted box-topped corks	10/	10/6	11/6	12/6	14/6	16/6	18/	21/	26/	31/	41/	44/	,,
Ground-glass stoppered	16/	17/	18/	20/	22/	25/	29/	32/	36/	40/	50/	56/	,,

SYRUP BOTTLES, dark-blue glass, hand-made, with loose plug stoppers—

20 oz.	30 oz.	40 oz.	
8/6	10/6	14/	per dozen.

Gold labelling, 3/; Engraved labels, 4/6.

SQUARES, PANELLED, white flint glass, narrow mouth—

Size	2	3	4	6	8	10	12	16	20 oz.	
Plain	8/6	9/6	11/6	13/	18/	20/	22/	26/	30/	per gross.
Ground-glass stoppered	17/6	19/6	23/	25/	32/	34/	36/	42/	48/	,,

SQUARES, PANELLED, white flint glass, wide mouth—

Size	2	3	4	6	8	10	12	16	20 oz.	
Plain	9/	10/	12/	14/	18/	21/	24/	28/	32/	per gross.
Ground-glass stoppered	20/	21/	26/	28/	34/	37/	40/	46/	52/	,,
Fitted boxwood-topped corks	15/	16/	19/	21/	26/	31/	34/	40/	44/	,,

These can be made to order, in quantities of not less than 5 gross of a size, in amber, actinic green, or dark blue glass, at the same prices as white flint glass.

MEXICAN FLATS—

Size	1	1½	2	3	4	6	8 oz.	
White flint glass	7/	7/6	8/6	10/	11/6	13/6	16/	per gross.
Blue opal glass	8/6	9/	10/6	12/	14/6	16/	18/6	,,
White opal glass	8/6	9/	10/6	12/	14/6	16/	18/6	,,

HONEY JARS, tie-over shape—

Size	½ lb.	Imperial ¼ pint	Imperial ½ pint	1 lb.	2 lb.	3 lb.	
Fluid capacity	6	5	10	12	24	36 oz.	
White flint glass	7/6	7/6	10/6	10/6	18/6	26/	per gross.
Pale green glass	7/	7/	9/6	9/6	17/	24/	,,
Vegetable parchment covers for tying over the mouths	9d.	9d.	9d.	9d.	1/	1/	,,

Various shapes with mouths for corks, white flint glass ... Fluid capacity ... 10 to 12 oz., 10/6 per gross.

VARIOUS SHAPES, fitted screw metal caps and cork wads, white flint glass—

½ lb.	1 lb.	2 lb.	
18/	20/	26/	per gross.

A Special Price List of Honey Jars, with Full-size Illustrations, sent Post Free on Application.

OILS white flint glass, round—

Size	2 dr.	½ oz.	6 dr.	1	1½	2	3	4	6	8 oz.	
With mouths for corks	5/	5/6	6/	7/	8/	9/	10/	11/	14/	18/	per gross.
Ground-glass stoppered	14/	15/	16/	17/	18/	19/	21/	25/	26/	34/	,,

PANEL FLATS, narrow mouth, three sides panelled and one side plain, white flint, or quinine tint glass—

Size	½ oz.	6 dr.	1	1½	2	3	4	6	8	10	12	16	20 oz.	
With mouths for corks	5/6	6/	6/6	7/6	8/6	11/	11/6	14/	15/	21/	24/	29/	34/	per gross.
Ground-glass stoppered	14/6	15/	15/6	16/6	17/6	21/	22/	26/6	29/	35/	38/	44/	52/	,,

PANEL FLATS, pale blue or green glass—

Size	½ oz.	6 dr.	1	1½	2	3	4	6	8	10	12	16	20 oz.	
With mouths for corks...	5/	5/6	6/	6/6	7/	8/	9/6	10/6	12/	18/	19/	24/	30/	per gross.
Ground-glass stoppered	14/	14/6	15/	15/6	16/	18/	20/	23/	25/	32/	33/	39/	48/	,,

PANEL FLATS, in white opal or blue opal glass—

Size	2	3	4	6	8 oz.	
	10/6	12/6	14/6	16/6	19/	per gross

PANEL FLATS, wide mouth, three sides panelled and one side plain, pale green glass—

Size	1	2	3	4	6	8 oz.	
With mouths for corks	6/	7/	8/6	9/6	10/6	12/	per gross.
Fitted glass stoppers and cork rings	10/6	11/6	13/	14/	15/	16/	,,
Fitted box-topped corks	11/	12/	14/	15/	16/	18/	,,

PANEL FLATS, globe neck, four sides panelled—

Size	1	1½	2	3	4 oz.	
Pale green glass	6/	7/	8/	10/	10/6	per gross.
White flint glass	6/6	7/6	9/	11/	12/	,,

PERFUMERY, Sample Bottles, white flint glass, heavy, for retailing with samples of perfumes at 2*d*. or 3*d*. each, oval, flat, cologne, Mexican, or panel shape. 1 dram size, 3/6 per gross; 2 dram size, 4/6 per gross.

POISONS, Sexagon Shape, fluted, lettered "Not to be taken," dark blue or dark Actinic green glass—

Size	2 dr.	½ oz.	6 dr.	1	1½	2	3	4	6	8	10	12	16	20 oz.	
With mouths for corks	4/	4/3	5/	5/6	6/6	7/	8/	9/	10/	12/	16/	18/	21/	26/	per gross.
Ground-glass stoppered	13/6	14/	15/	15/6	16/	17/	18/	19/	23/	26/	30/	33/	36	45/	,,

POISONS, Sexagon Shape, fluted, lettered "Not to be taken," pale green or pale blue glass—

Size	2 dr.	½ oz.	1	1½	2	3	4	6	8	10	12	16	20 oz.	
With mouths for corks	4/	4/3	5/6	6/6	7/	8/	9/	10/	12/	16/	18/	21/	26/	per gross.
Ground-glass stoppered	13/6	14/	15/6	16/	17/	18/	19/	23/	26/	30/	33/	36/	45/	,,

POISONS, Flat Shape, fluted, lettered "Not to be taken," dark blue or dark actinic green glass—

Size	2 dr.	½ oz.	6 dr.	1	1½	2	3	4	6	8	10	12	16	20 oz.	
With mouths for corks	4/	4/3	5/	5/6	6/6	7/	8/	9/	10/	12/	16/	18/	21/	26/	per gross.
Ground-glass stoppered	13/6	14/	15/	15/6	16/	17/	18/	19/	23/	26/	30/	33/	36/	45/	,,

SEND FOR OUR NEW ILLUSTRATED

Offices and Showroom: 83 UPPER THAMES STREET,

BOTTLES.

SYRINGES, Glass, male or female.

	¼	½	¾	1	1½	2 oz.	
In card boxes, each 1 dozen	1/3	1/6	1/9	2/3	3/	3/9	per dozen.
Each in card case. Fig. 146A	2/	2/3	2/9	3/6	4/3	5/	..

SYRINGES, Glass, superior quality, fitted boxwood, cocus, or ebony tops, male or female—

	¼	½	¾	1	1½	2 oz.	
In card boxes, each 1 dozen	1/10	2/3	3/3	3/6	4/6	6/	per dozen.
Each in card case	2/6	3/	4/	4/9	6/	7/6	..

GLYCERINE JELLY BOTTLES, with metal screw caps, white flint glass—

Size.	1 oz. short	1 oz. tall.	2 oz.	4 oz.	
No.	88	2893	91	119.	
Fitted white metal screw caps	11/	10/6	13/	16/6	per gross.
Fitted assorted colour caps, brilliantly lacquered	13/	12/6	15/	18/6	,,
Blue or white opal glass—					
Fitted white metal screw caps	12/	11/6	15/	18/6	,,
Fitted assorted colour caps, brilliantly lacquered	14/	13/6	17/	20/6	,,

Unless otherwise ordered, all screw-capped bottles are sent in divisioned card boxes, each containing one dozen bottles, at an extra charge of 1/ per gross on the above prices.

OVALS white flint glass—

Size	½ oz.	6 dr.	1	1½	2	3	4	5	6	8	10	12	16	20 oz.	
With mouths for corks	5/	5/6	5/6	6/	7/	8/	9/	10/	10/	10/	16/6	18/	21/	25/	per gross.
With glass stoppers and cork rings	—	—	8/	8/6	9/6	10/6	11/6	12/6	12/6	12/6	20/	22/	25/	30/	,,
Ground-glass stoppered	15/	15/6	15/6	16/	17/	18/	19/	22/	22/	23/	30/	32/	36/	43/	,,

'LA SPECIALITE' FEEDING BOTTLES (New Series)

FITTED WHITE RUBBERS.

No. 85.—Green glass bottle, wood-top cork	21/	per gross.
,, 86.—White ,, ,, ,,	23/	,,
,, 87.—Green glass bottle, SCREW GLASS STOPPER	24/	,,
,, 88.—White ,, SCREW GLASS STOPPER	26/	,,

FITTED BLACK RUBBERS.

No. 89.—Green glass bottle, wood-top cork	23/	per gross.
,, 90.—White ,, ,, ,,	25/	,,
,, 91.—Green glass bottle, SCREW GLASS STOPPER	26/	,,
,, 92—White ,, SCREW GLASS STOPPER	28/	,,

IN QUANTITIES OF NOT LESS THAN ONE GROSS OF A KIND. EACH BOTTLE IN PAPER BAG.

PLEASE QUOTE NUMBER IN ORDERING.

TABLET BOTTLES—White flint glass, with screw metal caps—

Fluid capacity	¼ oz.	½ oz.	
Oval shape...	8/	9/	per gross.
Watch shape	8/	9/	,,

TOILET VINEGAR SQUARES.

Size	2 oz.	4 oz.	8 oz.	16 oz.	
Pale-green glass, for corking	8/6	11/	14/	—	per gross.
,, ,, fitted glass stoppers and cork rings	10/6	13/	16/	—	,,
White flint glass ,, ,, ,,	11/6	14/	18/	—	,,
,, ,, extra heavy, for corking	—	12/	18/	30/	,,

MEASURES, glass, puntied bottoms, and accurately graduated, conical.

Size	½	1	2	3	4	6	8	10	12	16	20	24	32	40 oz.	
	3/6	4/	5/	5/6	7/	7/6	8/	9/	10/	11/	12/6	14/	15/	18/	per doz.

MEASURES graduated in accordance with Board of Trade standards, as required by the *Weights and Measures Act*, 1878, and bearing the Government Inspector's mark of verification—

Size	½	1	2	3	4	6	8	10	12	16	20	24	32	40 oz.	
	6/6	7/	8/	8/6	10/	10/6	11/	12/	13/	14/	15/6	17/	18/	21/	per doz.

MEASURES Minim Unstamped—

	1 dram 60 min.	2 dram 120 min.	
Cylindrical, lamp made	2/	—	per dozen.
,, in leather cases	4/	—	,,
,, tall on foot	3/9	4/9	,,
Conical, ½ oz. graduated 240 minims	—	6/6	,,
,, 1 oz. ,, 120 ,, 8 drams	—	6/	,,
,, 2 oz. ,, 120 ,, 16 ,,	—	7/6	,,

Minim Measures stamped (Certified), 3/ per dozen extra.

MEASURE GLASS TUMBLERS—

Graduated 4 table and 8 teaspoons	3/	per dozen.
,, ,, in best leather cases	8/6	,,
,, ,, in smooth ,,	7/	,,
With 1 dram minim measures, in best leather cases	11/	,,
,, ,, in smooth ,,	9/	,,

PRICE LIST, JUST ISSUED.

LONDON (close to Cannon Street Railway Stations).

GLASS BOTTLES.

TO WHOLESALE AND EXPORT BUYERS.

DISPENSING BOTTLES of best quality, in White Flint or all the best and newest tints. **VIALS.**—White Flint or Coloured, in all shapes and sizes **FEEDING BOTTLES.**—Plain mouths or Screw Stoppers, in White or Green Flint. **LIME CREAMS AND KALIS** of all sizes. **ESSENCE BOTTLES** of every description, Plain or Stoppered. **MALT EXTRACT BOTTLES,** in Actinic Green, Amber, Dark Blue, or White Flint.

TO FOREIGN AND COLONIAL BUYERS.

Having recently erected spacious Warehouses, we are enabled to give special attention to packing Goods for Export. Only experienced Packers employed.

E. A. HEARN & CO., WHOLESALE & EXPORT GLASS BOTTLE MANUFACTURERS, ECLIPSE GLASS WORKS, CHATSWORTH ROAD, CLAPTON, **LONDON, E.**

R. H. BARRETT'S PATENT CAPPED BOTTLE.

THE ONLY REALLY PERFECT BOTTLE FOR VASELINE, POMADE, DRY POWDERS, ETC.

NOTICE REDUCTION IN PRICES.

PRICES (in 5-gross Lots):—Fitted with STRONG METAL CAPS, CORK-LINED, in various colours, very attractive in appearance—1 oz., 11/6; 1½ oz., 12/-; 2 oz., 12/6; 3 oz., 14/9; 4 oz., 16/9 per gross.

CHEMISTS' AND PERFUMERS' BOTTLES IN GREAT VARIETY, PLAIN OR STOPPERED.

R. H. BARRETT,

FLINT GLASS BOTTLE WORKS,
THE OVAL, CAMBRIDGE HEATH, LONDON, E.
Telegraphic Address—"FOREFRONT LONDON." [2]

BOTTLES

Write for revised Price List of Dispensing Bottles, &c.

SAMPLES ON APPLICATION.

Special Quotations for Large Quantities.

E. YOULDON,

EAST LONDON GLASS BOTTLE WAREHOUSE,
36, 38, & 40 Great Garden Street.
WHITECHAPEL, LONDON, E.

Registered Trade Mark.

BEST FLINT DISPENSING BOTTLES, WHITE, BLUE, OR GREEN TINT, AMBER AND ALL OTHER COLOURS.

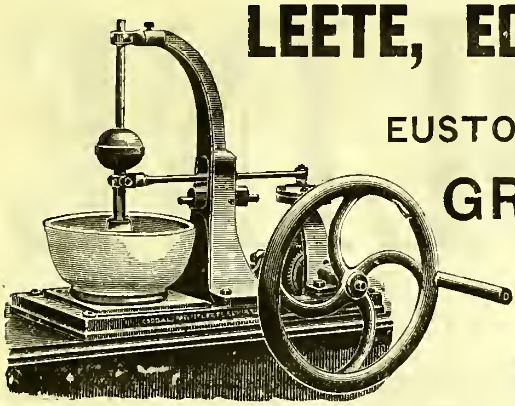
W

Number 26866.

HAND MADE SHOP-ROUNDS. OPAL, FLINT, AND TURQUOISE BOXES. SPECIAL ATTENTION GIVEN TO PROPRIETARY BOTTLES.

Owing to the steady and continuous increase in their business, and especially the enormous influx of trade they have experienced from Home and Colonial buyers during the last two or three years, the Proprietors of the above Brand of all shaped Dispensing and other Bottles have just completed an enlargement of their Works, which are now doubled in size, and capable of turning out very large quantities of Bottles at shortest notice.

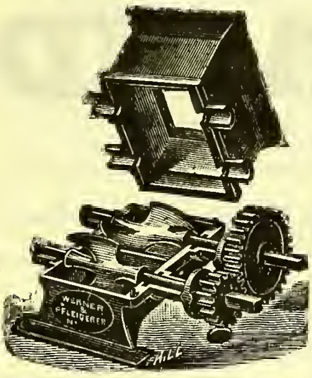
The "W" Brand productions can be obtained only through Wholesale London Houses.



LEETE, EDWARDS & NORMAN, Ltd.
ENGINEERS,
EUSTON ROAD, LONDON, N.W.

GRINDING, LEVIGATING,
AND **MIXING MACHINES.**
(GOODALL'S PATENT.)

PUMPS—For Semi-Fluids, Chemicals, &c.



Size 3, Type I, for 1-lb. Mass

THE "UNIVERSAL"
KNEADING AND MIXING MACHINE
Pill Cutting, Pill Rounding, Pipers, and all other Machines for
PILL MASS MAKING,
Also for Horse Balls, Tooth Pastes, Ointments, Soaps, Powders, and for general Mixing, Incorporating, Sifting, and Straining.

REPLACES WITH ADVANTAGE ALL OTHER APPLIANCES FOR THESE PURPOSES.

Made in various sizes, to do from ½ lb. up to 1 ton at a time.

WERNER & PFLEIDERER, 117 QUEEN VICTORIA ST., E.C.
Contractors to the War Offices of all the Great Powers and other Governments

GLASS BOTTLES From Stock in London or direct from the Works.
GOOD AND CHEAP.

Before ordering of any other house, write for sample of our

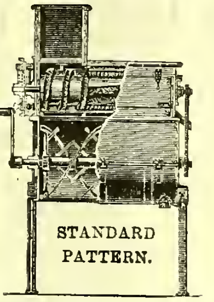
NEW SHAPE FLATS
WITH ROUNDED EDGES.

6 and 8 oz., 8/6 per gross.
3 „ 4 „ 7/6 „

PLAIN OR GRADUATED.
THE ORDINARY SHAPE THE SAME PRICE.

I. ISAACS & CO., Glass Bottle Manufacturers,
25 Francis St., Tottenham Court Rd., LONDON, W.C.
Established 50 Years. Bankers—London and Westminster Bank.

Use GARDNER'S Patent
'RAPID' SIFTERS & MIXERS


STANDARD PATTERN.

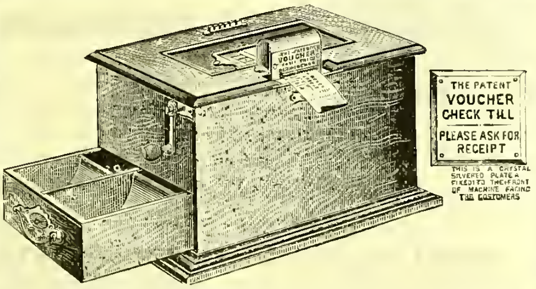
For Sifting and Blending every kind of Dry Powders.

New Illustrated Catalogue on application to

WM. GARDNER,
Engineer, &c., Gloucester.

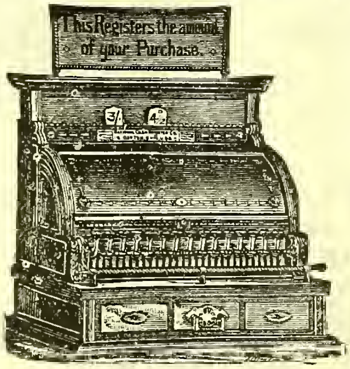
THE PATENT "VOUCHER" CHECK TILL.

Absolute Security and Effective Advertising Medium.


THE PATENT VOUCHER CHECK TILL
PLEASE ASK FOR RECEIPT
THIS IS A CRYSTAL SILVERED PLATE FIXED TO THE FRONT OF MACHINE FACING THE CUSTOMERS

WHAT USERS SAY OF IT.
"The best Check Till extant."—"Balance exact."—"Very superior to other systems."—"Saves a lot of expense."—"Not seen its equal as a check."
Testimonials and Prices from
THE PATENT VOUCHER CHECK TILL CO., LIM.
Burlington Chambers, New Street, BIRMINGHAM.

A NATIONAL CASH REGISTER TILL


This Registers the amount of your Purchase.
3/
4½

Is a Never Tiring Sentinel, a Silent Monitor, a Faithful Guardian, a Devoted Friend, a Hardworking Partner, a Correct Cashier, and a Never-Mistaken Bookkeeper.

It is Perfect in Make, Perfect in Action, Perfect in Finish, and Perfect in Results.

Please Call and Examine at our London Offices and Showrooms,

356 STRAND, W.C.,

Or send us a Post-Card, and one of our Representatives will call on you with a Sample Register and explain our System.

OVER 47,000 IN USE IN VARIOUS PARTS OF THE WORLD

CARBOLINE

The strongest non-poisonous disinfectant known. All chemists should sell the Carboline disinfectants, as they are in good demand, and leave a large profit to the Retailer.

Correspondence invited. Chemists would do well to write us before stocking any Disinfectants.

HENRY ELLISON, F.C.S., THE DISINFECTANTS CHEMICAL WORKS, CLECKHEATON, YORKS.

CARBOLIC ACID

LIQUID, CRUDE and REFINED, CRYSTALS, ICE and GLACIAL, B.P.

SPECIALITY. Our Refined Liquid Carb. Acid is a bright pale colour, guaranteed 97 % to 99 %, and free from all impurities, such as Sulphuretted Hydrogen, &c.

CARBOLIC POWDERS, 5 % to 20 %, from £4 per ton, Pink and Grey colours; also in black and gold decorated tin boxes, 1*s.* sizes from 3*s.* 6*d.* per dozen; 1*s.* 6*d.* sizes from 5*s.* 6*d.* per dozen.

CREOSOL, the Non-Poisonous Disinfectant. A true Germicide and Deodoriser, forming a pleasant milky emulsion in water.

SHEEP DIPS, Concentrated, Non-Poisonous, soluble in cold water; and Poisonous Powder Dip.

BUY FROM THE MAKERS THE CHEAPEST HOUSE IN THE TRADE.

Samples Free on Application.

"THE STAR CHEMICAL WORKS," 36 John Street WANDSWORTH and Lombard Road, BATTERSEA, **LONDON, S.W.**

DAY, SON & HEWITT'S

NEVER FAILING HORSE, CATTLE & SHEEP MEDICINES.

THE CHEMICAL EXTRACT.

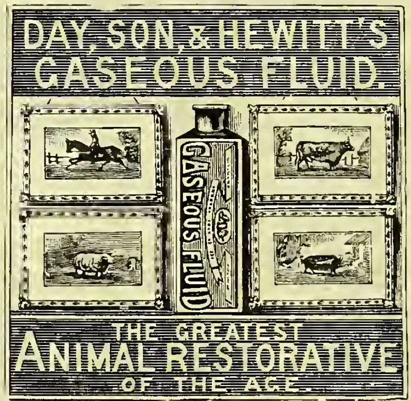
For Kicks, Cuts, Bruises, Sore Withers Swellings, Strains of Ligaments and Tendons, Saddle Galls, &c. It rapidly relieves Straining and Paining after Calving and Lambing, and is the remedy for Swollen Udders and Sore Teats.

Price 2s. 6d., 3s. 6d., and 7s. per Bottle.

THE CASEODYNE,

Used as Laudanum for parturition in Mares, Cows, and Ewes, when there is great pain exhibited with feverish symptoms. Highly beneficial for Inflammatory Colic or Enteritis, and for severe forms of Diarrhœa.

Price 3s. 6d. per Large Bottle.



For Fret, Colic, or Gripes in Horses, Hoven or Blown Sheep, and General Debility in Stock; of exceptional value for Colds, Chills, Scour, Diarrhœa, and weakly Lambs and Calves.

Price 1s. 9d. per Bottle. 20s. per doz.

THE RED DRENCH.

For Colds, Indigestion, Costiveness, Yellows, Surfeits, Loss of Cud, Pleurisy, Hidebound, Red Water, &c. Admirably adapted for cleansing and checking feverish symptoms in Cows and Ewes after a bad time of Calving or Lambing.

Price: for Cows, 13s. per doz.; for Ewes, 3s. 6d. per doz.

THE BRONCHOLINE.

For Husk or Hoose in Heifers, Calves, Sheep, and Lambs, also Tape-worms in Tegs. No parasite can exist in the windpipe or air-passages after the blood has been impregnated with this worm-destroying medicine.

Price 2s. 6d. per Bottle.

THE ORIGINAL
STOCK-BREEDER'S MEDICINE CHESTS,
For Horses, Cattle, and Sheep. Prices, £1 8s. 9d. and £2 16s. 6d.

THE ORIGINAL
HORSE-KEEPER'S MEDICINE CHESTS,
For all ailments in Horses. Prices, £1 10s. and £2 17s. 6d.

ROYAL ANIMAL MEDICINE MANUFACTORY, 22 DORSET ST., LONDON, W.

Liberal Discount to Foreign Buyers. Trade Terms and full particulars on application.
Attractive Show-cards and Handbills sent with each order.

TASMANIA EUCALYPTUS OIL COMPANY

DISTILLERS OF ABSOLUTELY PURE

EUCALYPTUS GLOBULUS OIL, and EXTRACT.

FIRST AWARD AND GOLD MEDAL, TASMANIAN EXHIBITION, 1892.

Orders now being booked for the coming winter's requirements. Apply for Information and Samples to the Company,

138 LEADENHALL STREET, LONDON. E.C.

Telegraphic Address—"Eucalyptus London." Distilleries and Chief Office, Hobart, Tasmania.

NEDERLANDSCHE ALBUMINE-FABRIEK LEIDEN

SACCHARUM LACTIS

(SYSTEM LANGEN).

Highly recommended by authorities. The only make of perfect purity in all respects.

AGENTS— [2]

BURROUGHS BROS., 66 Basinghall St., LONDON, E.C.

For CLEANING PLATE!

BRADLEY & BOURDAS'S

ALBATUM or WHITE ROUGE,

For CLEANING GOLD, SILVER, and PLATED GOODS.

A trial is only needed to prove its superiority over other Plate Powders in use. Chemists will find it to their advantage to recommend this Powder, as when it is once tried it is always continued to be used. Sold in Boxes at 1s. and 2s.; Tins, 6s.

6 PONT ST., BELGRAVE SQ., & 48 BELGRAVE RD., LONDON, S.W.

STAPLES' Patent FLUID NON-POISONOUS SHEEP DIP & CATTLE CLEANSER.

POISONOUS POWDER DIP

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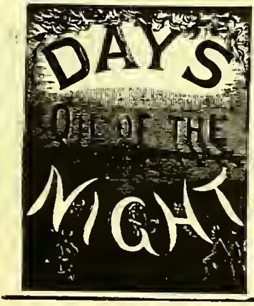

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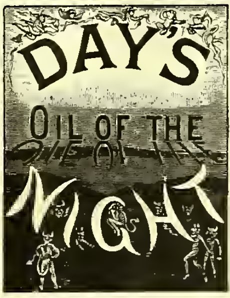

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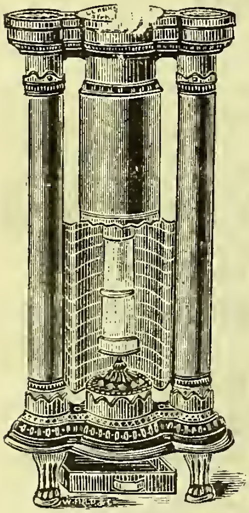

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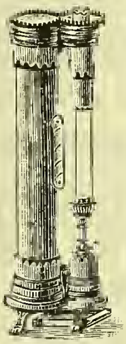

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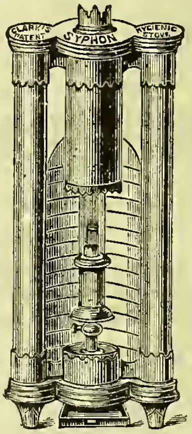

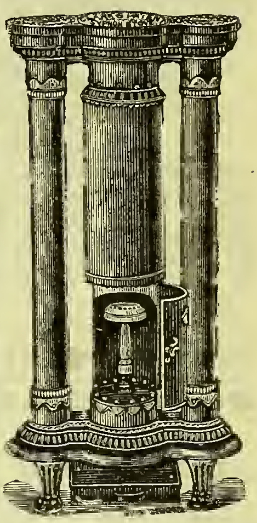

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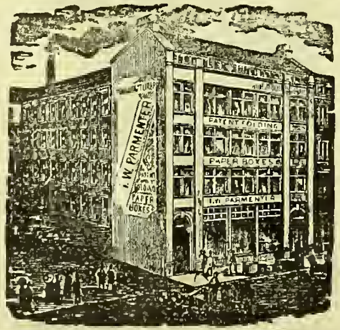

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3	6	..	½-gall. Iron Drums (drums included)	2	6	each
6	0	..	1-gall. Drums " "	4	6	"
11	6	..	2-gall. " " "	8	6	"
28	6	..	5-gall. " " "	20	0	"
65	0	..	10-gall. " " "	38	6	"
Per gall.						
5	0	..	20 and 40 gall. Casks (casks free, not returnable)	3	6	per gall.
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1	0	each	Canisters, in boxes of 1, 2, or 3 doz.	8	6	per doz.
0	6	"	" " " "	4	0	"

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2	6	..	Toilet (Scented), in Boxes containing 6 Tablets	1	9	"
2	6	..	Sublime Toilet (Unscented) in Boxes of 6 Tablets..	1	9	"
3	0	..	Sublime Toilet (Scented)	2	0	"
2	0	..	Boudoir Tablets (Perfumed), in Boxes of 3 Tablets..	1	4	"
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1	0	each	..	Tooth Powder, in Metal Boxes	7	0	per doz.
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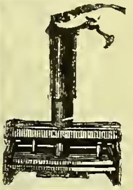

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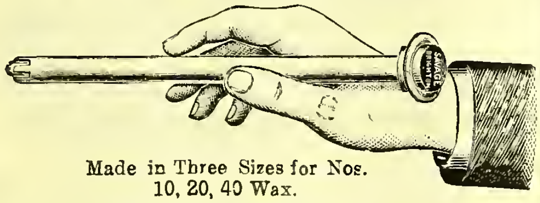

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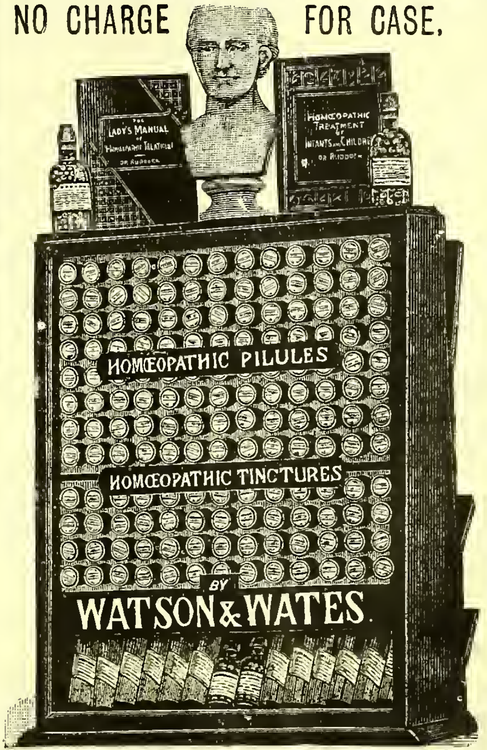

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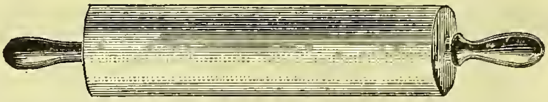

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Above evidence is sufficient to show this is the best shape yet brought out.

	Doz.		Doz.
No. 107F.—Good 3*d*. Pedestal, 1 doz. on a card	1/10	No. 8P—6*d*. Boxwood, Acorn shape	3/3
No. 109.— " 4*d*. " 1 doz. in box	2/6	No. 111—1*s*. " "	5/-
No. 117.—Monster 6*d*., 1 doz. in box	3/3	No. 40.—6*d*. " Watch shape	3/3
No. 113R—Reversible Boxwood, 1 doz. in box	3/6	No. 17F—1*s*. " Flat	5/-
No. 113P.—Printed Skittle, 1 doz. in box	3/6	No. 9CR.—1*s*. " Reversible	4/6

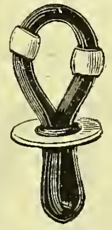
1*d*. Lines, 6/- and 6/6 per gross. 2*d*. Barrel or Pedestal, 14/- per gross.

☞ £2 Parcels, assorted. Charming China Figure of "Justice" given away to assist Sale. Pretty little Glass Show Case given away with 15/- order.

CORN SOLVENT.

in Actinic Bottles, fitted with Boxwood Cork and Brush, carded, 2/6 per dozen. Bottle, Cork, and Brush, empty, 1/- per dozen.

SOOTHING TEATS.



6*d*. 'Adapted.'

1*d*. Line, 3 doz. on card	7/6 gross.	3*d*., 1 doz. on card, bone mount	1/10 dozen.
2*d*. " "	14/- "	4*d*., " "	2/4 "
3*d*. Bone "	17/- "	6*d*., " "	3/6 "
3*d*. Rubber "	17/- "	6*d*., Vegetable Ivory Whistle and Ring	3/9 "
3*d*. 'Adapted' "	2/- dozen.	6*d*. 'Fascinaters'	3/6 "
		6*d*. 'Adapted,' with Bone and Rubber parts	3/9 "

SMELLING BOTTLES, &c. 23s. Worth for 20s. SPECIAL BARGAINS.

No. 324.

No. 324.—This is a Watch shape, containing in gold-glass exact facsimile of Jubilee Sovereign	3/9 dozen.
No. 309—Charming Line, hand-painted glasses and cameos in face	3/9 "
No. 328.—Flask shape, assorted colours, metal screw cap	16/- gross.
" " " " filled	21/- "
No. 313.—Globe shape, with two stoppers, quite air-tight, very prettily cut	12/6 dozen.
No. 330.—Large wide-mouth bottles, assorted colours, globe stoppers, for Lavender Salts, wonderful value	3/6 "
No. 331.—China Globe, wide mouth, for Salts, assorted decorations, colours, and gilt	4/- "
No. 316.—English Stoppered Globe, handsomely cut, for Perfume, &c., &c.	20/- "

English-made Bottles in variety. Special Lists on Application. £1 Assortment sent.

SMELLING BOTTLES IN PURSES, 4/-, 7/-, 8/- doz.; also with Chatelaine attached, 10/6 doz.

A1 TOOTH SOAP,

on Easel Card, 3/6 doz. Very attractively got up.

PUFF BOXES AND TURNERY.

Capital Lines from 2/3 doz. upwards. Also TURNED WOOD BOXES of every description. Fancy covered 3-inch Puff Box, 3/9 and 4/- doz.; 4-inch, 7/.

REALLY CHARMING GOODS.

SPECIAL LIST ON APPLICATION.

SPRAYS. 6*d*., 4/- doz; 1*s*., 8/- doz.; other sizes, 13/-, 17/-, 28/-, &c. PUMPS from 18/- upwards.

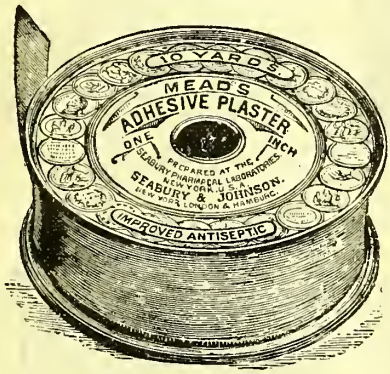
ETIENNE FRÈRES' PERFUMES.

1*d*. Tubes	8/ gross.	6*d*. ½ oz. Lundborg's	3/6 doz.
2*d*. Bottles	14/ "	1*s*. Lundborg's stoppered, 1 oz.	8/ "
3*d*. Sprinklers	2/ doz.	2 oz. " "	13/ "
(All above carded)		4 oz. " "	24/ "
		1 oz. Fancy Bottles	8/ "
6*d*. Ring Bottles, stoppered	4/ doz.	1 oz Heavy Essence, cut stopper	8/ "
6*d*. ½ oz. Essences, sprinkler	3/9 "	1*d*. Eau de Cologne	8/ gross.
6*d*. ½ oz. " capped	3/6 "	3*d*. Eau de Cologne	1/10 doz.

ARTHUR W. SHIRLEY, 55 Farringdon Road, LONDON, E.C.

MEADS
RUBBER ADHESIVE
PLASTER

In 5 yard rolls (plain), 12 inches wide - - 5/- per roll.
„ 1 „ „ 7 „ 14/- per doz. rolls.


10 YARDS
MEAD'S
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ONE INCH
PREPARED AT THE SEABURY PHARMACAL LABORATORIES, NEW YORK, U.S.A.
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NEW YORK, LONDON & HAMBURG.
IMPROVED ANTISEPTIC

ON SPOOLS (*See Illustration*)—

WIDTH	¼	½	1	1½	2	2½	3 INCHES.	
Length 10 yds.,	12/-	14/-	16/-	20/-	24/-	28/-	30/-	per doz.
„ 5 „	9/-	10/-	12/-	15/-	18/-	21/-	24/-	„

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6*d.* and 1*s.* Tins, 4/- and 8/- per dozen. *Subject to Discount.*

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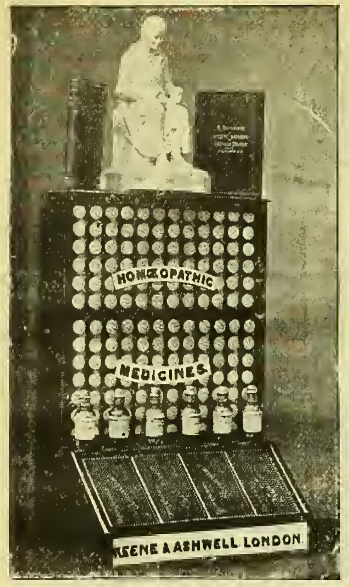
Newest Designs. Agents' Show Cases.

ALL SHOW CASES FREE WITH OPENING ORDER TO AMOUNT OF CONTENTS.



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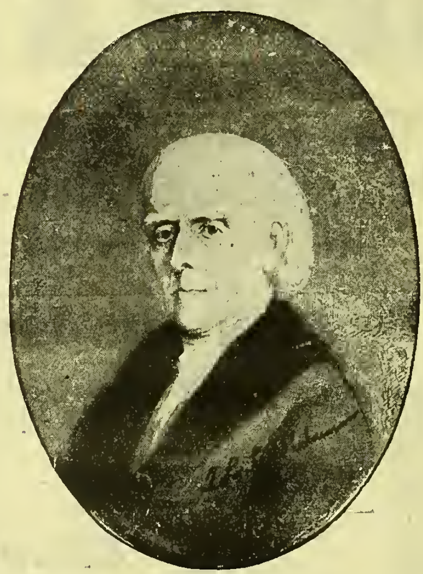
HANDSOME CASE FREE.



ALL 1/- MEDICINES

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PER DOZEN.

Special Terms to large Buyers.

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With DESK, £5 15s.; without, £5.

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SUCCESSORS TO HEADLAND & Co
The first established Homœopathic Chemists
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DOSE.—One or two dry on the
15 minutes till relieved then
These pilules are prepared with
recommended by Dr.
N.B. Keep the bottle
MEDICINES PREPARED ACCORDING TO THE HOMŒO

CAMPHOR PILULES,

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3/6 PER DOZEN,

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THE NEW

Cashier's Desk and Case

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